Vol. XVI. July, 1914. No. 7

THE TECHNOLOGY REVIEW

RELATING TO THE MASSACHVSETTS INSTITVTE OF TECHNOLOGY

PVBLISHED AT
491 BOYLSTON STREET BOSTON BY THE
ALVMNI ASSOCIATION

Entered as second-class mail matter at MAGAZINE NUMBER Monthly, except August, September

technology
review
Published by MIT

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THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Boston, Mass.

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY aims to give thorough instruction in *Civil, Mechanical, Chemical, Mining, Electrical,* and *Sanitary Engineering;* in *Chemistry, Electrochemistry, Architecture, Physics, Biology* and *Public Health, Geology,* and *Naval Architecture.*

To be admitted to the Institute, the applicant must have attained the age of seventeen years and must pass examinations in algebra, plane and solid geometry, physics, history of the United States (or ancient history), English, French and German. Preparation in some one of a series of elective subjects is also required. A division of these examinations between different examination periods is allowed. In general, a faithful student who has passed creditably through a good high school, having two years' study of French and German, should be able to pass the Institute examinations.

Graduates of colleges, and in general all applicants presenting certificates representing work done at other colleges, are excused from the usual entrance examinations and from any subjects already satisfactorily completed. Records of the College Entrance Examination Board, which holds examinations at many points throughout the country and in Europe, are also accepted for admission to the Institute.

Instruction is given by means of lectures and recitations, in connection with appropriate work in the laboratory, drawing-room or field. To this end extensive laboratories of chemistry, physics, biology, mining, mechanical engineering, applied mechanics, and the mechanic arts, have been thoroughly equipped, and unusual opportunities for field-work and for the examination of existing structures and industries have been secured. So far as is practicable, instruction is given personally to small sections rather than by lectures to large bodies of students.

The regular courses are of four years' duration, and lead to the degree of Bachelor of Science. In most courses the work may also be distributed over five years by students who prefer to do so. Special students are admitted to work for which they are qualified; and the degrees of Master of Science, Doctor of Philosophy, and Doctor of Engineering are given for resident study subsequent to graduation. Opportunity for research is offered in all the departmental laboratories, in the three recently established Research Laboratories of Applied Chemistry and Physical Chemistry, and in the Sanitary Research Laboratory and Sewage Experiment Station.

The tuition fee, not including breakage in the laboratories, is $250 a year. In addition, $30 to $35 per year is required for books and drawing materials.

For catalogues and information, address

ALLYNE L. MERRILL, *Secretary of the Faculty,*

491 Boylston Street, Boston.

The Technology Review

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COUNCIL MEETINGS: 4th Monday of each month from October to May, inclusive. The Council meets at the Engineers' Club, Boston.

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Vice-Presidents, WILLIAM H. KING, '94, HENRY J. HORN, '88, JAMES W. ROLLINS, '78.
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LUTHER K. YODER, '95.
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ORGANIZED IN NEW YORK, JANUARY 17, 1913

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Atlanta—Atlanta M. I. T. Alumni Association, H. M. Keys ('99), Secretary, 65 West 10th Street, Atlanta, Ga.

Birmingham—Southeastern Technology Association, A. F. Mohan ('08), care Kirkpatrick Sand & Cement Co., Birmingham, Ala.

☞ Luncheon—Saturdays at 1.00 p. m. at the Turnverein.

Boston—Technology Club of Boston, Dr. Robert Seaton Williams ('02), Secretary, 83 Newbury Street, Boston. Mass.

Bridgeport—Technology Club of Bbidgeport, G. Mac. Macdonald ('03), Secretary, University Club, Bridgeport, Conn.

Buffalo—Technology Club of Buffalo, H. M. Cowper ('05), Secretary, 1010 Mutual Life Bldg., Buffalo, N. Y.

☞ Luncheon—First Thursday of every month at 12.30 p. m. at the Buffalo Chamber of Commerce.

Chicago—Northwestern Association of the M. I. T., George B. Jones ('05), Secretary, 1444 Monadnock Bldg., Chicago, Ill.

☞ Luncheon—Thursdays at 12.30 p. m. at Grand Pacific Hotel, Clark and Jackson Streets.

Cincinnati—The Cincinnati M. I. T. Club, Stuart R. Miller ('07), Secretary, 3366 Morrison Avenue, Clifton, Cincinnati, Ohio.

☞ Luncheon—Tuesdays from 12.30—2.00 p. m. in Main Dining Room, at the Bismarck, Mercantile Library Building, Walnut Street.

Cleveland—Technology Club of Northern Ohio, Cleveland, Ohio, Donald R. Stevens ('11), Secretary, Peerless Motor Car Company, Cleveland, Ohio.

Dayton—Dayton Technology Club, Edwin C. Wells ('92), Secretary, Platt Iron Works, Dayton, Ohio.

☞ Luncheon—Fridays, at 12.15, at the Rike-Kumler restaurant.

Denver—Rocky Mountain Technology Club, M. W. Hayward, ('06), Secretary, 625 Colorado Bldg., Denver, Col.

☞ Luncheon—Wednesdays, from 12.30 to 1.30 p. m. at Colorado Electric Club, Chamber of Commerce Bldg., Denver, Col.

Detroit—Detroit Technology Association, Preston M. Smith ('05), Secretary, care of Carl E. Schmidt & Co., 54 Macomb Street, Detroit, Mich.

Duluth—Technology Club of Lake Superior, Duluth, Minn., Floid M. Fuller ('06), Secretary, 812-814, Torrey Bldg., Duluth.

Hartford—Technology Club of Hartford, Conn., George William Baker ('92), Secretary, Box 983, Hartford, Conn.

Hawaii—Hawaii Technology Club, Norman Watkins ('98), Secretary, Box 767, Honolulu, H. I.

Indianapolis—Indiana Association, M. I. T., Wilson B. Parker ('88), Secretary, 805 Board of Trade Bldg., Indianapolis, Ind.

☞ Luncheon—15th day of each month. Place announced each month.

Japan—Technology Association of Japan, Dr. Takuma Dan ('78), Secretary-Treasurer 344 Awoyama Harajiku, Tokio, Japan.

Kansas City, Mo.—Southwestern Association of M. I. T., Robert S. Beard ('05), Secretary-Treasurer, 5th Floor, Waterworks Bldg., Kansas City, Mo.

Lawrence } Technology Club of the Merrimack Valley, John Arthur Collins, Jr. ('97),
Lowell } Secretary, 67 Thorndyke Street, Lawrence, Mass.

Los Angeles—Technology Club of Southern California, Robert S. Breyer ('10), Secretary, Box 614, Y. M. C. A., Los Angeles, Cal.

☞ Luncheon—First Wednesday of each month at the University Club.

Manchester—Technology Club of New Hampshire, Walter D. Davol ('06), Secretary-Treasurer, 819 Elm Street, Manchester, N. H.

Manila—Technology Club of the Far East, William A. Adams ('08), Secretary, Bureau of Lands, Manila, P. I.

Milwaukee—Technology Club of Milwaukee, Mitchell Mackie ('05), Secretary, Commercial Auto Co., Milwaukee, Wis.

☞ Luncheon—Every Thursday noon, at the University Club.

Minneapolis—Technology Association of Minnesota, DeW. C. Ruff ('07), Secretary, Manhattan Bldg., St. Paul, Minn.

Montreal—Technology Club of Lower Canada, E. B. Evans ('06), 357 St. Catherine Street, W., Montreal, Quebec.

New Bedford—Technology Club of New Bedford, Mass., Richard D. Chase ('92), Secretary, 607 Purchase Street, New Bedford, Mass.

New Orleans—Technology Club of the South, Frank Wyman Crosby ('90), Secretary, 501–504 Denegre Building, New Orleans, La.

New York—Technology Club of New York, 17 Gramercy Park, F. C. Schmitz ('95), Secretary, 220 Fifth Avenue, New York, N. Y.

Philadelphia—Technology Club of Philadelphia, F. B. Wood ('09), 5001 Lancaster Avenue, Philadelphia, Pa.

Pittsburgh—Pittsburgh Alumni Association, Harry A. Rapelye ('08), Secretary, 2123 Oliver Bldg., Pittsburgh, Pa.

Pittsfield—Pittsfield Alumni Association, E. A. Jones ('87), P. O. Box 1623, Pittsfield, Mass.

Portland—Technology Association of Oregon, R. E. Cushman ('06), Secretary-Treasurer, 266 East 27th Street, N., Portland, Ore.

Providence—Technology Club of Rhode Island, Clarence L. Hussey ('08), Secretary, Fruit Hill, 1547 Smith Street, Providence, R. I.

Rochester—Technology Club of Rochester, J. F. Ancona ('03), Secretary, 190 Birr Street, Rochester, N. Y.

St. Louis—St. Louis Society of the M. I. T., Amasa M. Holcombe ('04), Secretary-Treasurer, care of Carr & Carr, 510 Pine Street, St. Louis, Mo.

San Francisco—Technology Association of Northern California, Office, 832 Merchants Exchange Bldg., San Francisco, Cal., Herbert D. McKibben ('06) Secretary, 2136 Center St., Berkeley, Cal.

☞ Luncheon—Tuesdays at Jules Café.

Salt Lake City—Intermountain Technology Association, Gregory M. Dexter ('08), Secretary-Treasurer, Box 195, Salt Lake City, Utah.

Seattle—Technology Club of Puget Sound, Joseph Daniels ('05), Secretary, Box 115, University Station, Seattle, Wash.

Spokane—Inland Empire Association of the M. I. T., Philip F. Kennedy ('07), Secretary, 01228 Hamilton Street, Spokane, Wash.

Springfield—Technology Club of the Connecticut Valley, Ernest W. Pelton ('03), Secretary, 77 Forest Street, New Britain, Conn.

Steelton—Technology Club of Central Pennsylvania, E. L. Chapman ('01), Secretary, Box 764, Harrisburg, Pa.

Syracuse—M. I. T. Club of Central New York, H. N. Burhans ('07), Secretary, 227 McLennan Avenue, Syracuse, N. Y.

Urbana—Technology Club of the University of Illinois, H. N. Parker ('94), Secretary, University of Illinois, Urbana, Ill.

Washington—Washington Society of the M. I. T., Walter J. Gill, Jr. ('04), Secretary, 1306 Rhode Island Avenue, N. W., Washington, D. C.

Worcester—Technology Association of Worcester County, Louis E. Vaughan ('02), Secretary-Treasurer, 4 Fenimore Road, Worcester, Mass.

FIXED LUNCHEONS

Birmingham—Southwestern Technology Association at the Turnverein, Saturdays at 1.00 p. m.

Buffalo—Technology Club of Buffalo, at the Buffalo Chamber of Commerce, on the first Thursday of every month at 12.30 p. m.

Chicago—Northwestern Association of M. I. T. at Grand Pacific Hotel, Thursdays at 12.30 p. m.

Cincinnati—Cincinnati M. I. T. Club in the Main Dining Room, at the Bismarck, Mercantile Library Bldg., Walnut Street, Tuesdays from 12.30 to 2.00 p. m.

Dayton—Dayton Technology Club, Fridays, at 12.15, at the Rike-Kumler restaurant.

Denver—Rocky Mountain Technology Club, Wednesdays, from 12.30–1.30 p. m., at Colorado Electric Club, Chamber of Commerce Bldg., Denver, Colo.

Indianapolis—15th day of each month. Place announced each month.

Los Angeles—Technology Club of Southern California, at the University. on the first Wednesday of each month.

Milwaukee—Technology Club of Milwaukee, every Thursday noon at the University Club.

San Francisco—Technology Association of Northern California, at Jules Café, Tuesdays.

SUSTAINING MEMBERS OF THE ALUMNI ASSOCIATION

Edward D. Adams, '69
Frederick H. Adams, '11
Louis W. Adams, '03
Orton W. Albee, '93
W. B. Allbright, '78
Arthur C. Anthony, '86
C. B. Appleton, '84
Charles M. Baker, '78
J. C. T. Baldwin, '88
William L. Benedict, '80
Edgar M. Berliner, '07
W. I. Bickford, '01
Zenas W. Bliss, '89
H. L. Bodwell, '98
Philip D. Borden, '73
James C. Boyd, '93
H. G. Bradlee, '91
F. H. Briggs, '81
H. F. Bryant, '87
Leonard T. Bushnell, '05
G. H. Capen, '83
George E. Claflin, '88
Eugene H. Clapp, '95
Whitney Conant, '68
F. L. Connable, '93
Joseph W. Crowell, '04
Edward Cunningham, '91
William L. Curry, '99
William C. Cushing, '87
H. H. Cutler, '81
Herbert Dabney, '75
J. R. Daniell, '97
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Alvan L. Davis, '98,
E. H. Dewson, '85
Franklin W. Doliber, '97
George A. Draper, '76
Irénée duPont, '97
P. S. duPont, '90
N. Durfee, '89
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F. H. Fay, '93
S. M. Felton, '73
Arthur B. Foote, '99
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E. Frank, '06
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Franklin W. Hobbs, '89
Frank W. Hodgdon, '76
E. Holbrook, '74
F. C. Holmes, '92
Charles F. Hopewell, '94
Arthur T. Hopkins, '97
H. J. Horn, '88
Henry Howard, '89
C. W. Hubbard, '09
S. K. Humphrey, '98
H. Jaques, '77
Carl F. Johnson, '01
Daniel S. Johnson, '00
Paul Johnson, '98
Arthur W. Jones, '88
E. A. Jones, '87
Theodore Jones, '86
Chas. W. Kellogg, Jr., '02
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Van Rensselaer Lansingh, '98
W. H. Lawrence, '91
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F. M. Learned, '76
C. M. Leonard, '00
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Philip Little, '79
R. W. Lodge, '79
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William B. Page, '93
F. A. Park, '95
J. Scott Parrish, '92
E. E. Pettee, '92
F. M. Pinto, '91
Raymond B. Price, '94
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T. G. Richards, '94
Richard A. Robertson, '78
T. W. Robinson, '84
J. A. Rockwell, '96
E. W. Rollins, '71
J W. Rollins, '78
Montgomery Rollins, '89
H. F. Ross, '82
Guy H. Ruggles, '06
John C. Runkle, '88
Norman F. Rutherford, '96
Richard E. Schmidt, '87
George O. Schneller, '00
T. E. Sears, '03
Lewis J. Seidensticker, '98
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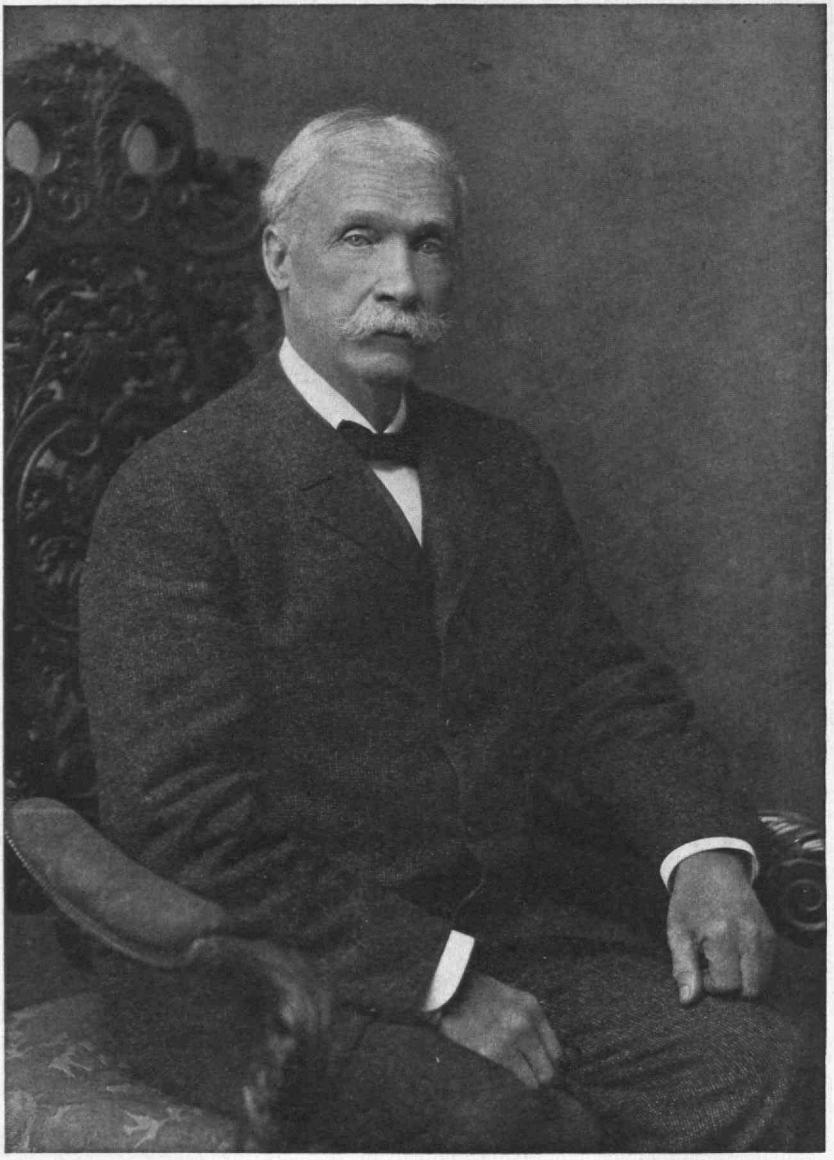
F. N. Smalley, '96
J. C. Smith, '88
Frank A. Smythe, '89
Frank G. Stantial, '79
G. F. Starbuck, '97
William C. Stearns, '71
Eben S. Stevens, '68
Charles A. Stone, '88
S. Sturges, '87
Henry N. Sweet, '81
Gerard Swope, '95
H. P. Talbot, '85
Albert W. Thompson, '96
J. P. Tolman, '68
J. H. Towne, '90
Walter D. Townsend, '76
L. B. Turner, '05
W. Lyman Underwood, '98
Henry M. Waite, '90
Albert C. Warren, '74
Leonard C. Wason, '91
K. W. Waterson, '98
W. H. Watkins, '95
Edwin S. Webster, '88
Robert S. Weston, '94
George C. Whipple, '89
Willis R. Whitney, '90
F. H. Williams, '73
Sidney Williams, '87
Arthur L. Williston, '89
Kenneth F. Wood, '94
F. E. Woodbury, '89
Henry E. Worcester, '97
A. G. Zimmerman, '94



ROBERT HALLOWELL RICHARDS, '68

A graduate of the first Institute class, a pioneer in the laboratory method of teaching mining engineering, a devoted alumnus, Professor Richards is first in the hearts of Institute alumni.

The Technology Review

VOL. XVI JULY, 1914 No. 7

EDUCATIONAL INSTITUTIONS TO SERVE

Report of the Committee on Organized Co-operation between Technology and the Commonwealth of Massachusetts—A definite plan by which the institutions of higher learning may be of service to the State

On January 10, 1914, at the annual banquet of the Alumni Association, Governor Walsh gave deliberate expression to the need felt by the State for a closer and more authoritative coöperation between the Institute and the various governmental agencies of the State. The governor expressed his earnest hope that such a method of coöperation between the State and the Institute would speedily be evolved. The governor thus crystallized a deep need, long realized by the Institute authorities, the alumni of the Institute, and thinkers generally, as to the proper relation between the educational facilities of the State and the State administration. His suggestion met with prompt response. It was immediately considered by the Council of the Alumni Association, and the president of your association was directed by the Council to appoint a committee to investigate and report upon this subject.

APPOINTMENT AND PERSONNEL OF COMMITTEE

Acting upon this instruction, the president of the association appointed a committee which, in its membership, represented the various interested factors of the problem, namely, the Commonwealth, the Institute, the community at large, the public utility and business interests and labor. Acting in an advisory capacity but not voting, were the president of the association and its secretary-treasurer.

Official Recognition of Committee

The public responsibility of this committee was fixed by the president of the Alumni Association, to which the committee reports, the Governor of the State, and the President of the Institute. We have set forth in the appendix the proceedings before this committee held at its first meeting in the Council chamber, which the Governor kindly set at our disposal. (Exhibit A.) Here it will suffice to quote briefly from the remarks made by Jasper Whiting, the alumni president, Governor Walsh, and Richard C. Maclaurin, the President of the Institute, to indicate the character and importance of the committee's work as conceived by them.

President Whiting:

I ask you, gentlemen, as members of this committee, to give to this matter most serious consideration. Your report, while nominally going to the Institute authorities, will be, in reality, a public document of interest to citizens throughout the state. The importance of this matter could not be better recognized than by the presence here today of His Excellency, the Governor of the Commonwealth and the President of the Institute.

Governor Walsh:

One cannot be Governor of the Commonwealth of Massachusetts very long without realizing the absolute lack of thorough research information available on public problems. . . . Why not join with the Commonwealth and give her the assistance of your energy and expert knowledge? It seems to me there is a very great opportunity for some strong coöperative work. Just how to do it—in what manner—how far you can go—how far your financial limitations will permit you to go—how far your relationship with your Faculty and your student body—I cannot determine; but I know that we need help and need help that you can give us, and if we can devise some way as a result of this meeting that will bring these two forces together and give the Commonwealth the benefit of the science and the knowledge and the experimental work you are doing, it would be of great benefit to our people and would encourage the State to be more interested in your institution. Here is an opportunity for your institution to become very closely identified with the State and I am sure that the more useful you make yourself to the State the more anxious the State will be to give in return and help you in the work you are doing. I know you can help us; and I hope you will devise a way to do it. Massachusetts has been liberal and generous to your institution and I am pleased to know of the spirit you show in being anxious to serve her in return for her generosity.

President Maclaurin:

. . . The Institute of Technology, like other public institutions, exists of course for service. That is what it is for. So this is not a new problem, but only

one of looking out for new kinds of service. One of the problems is how to make the most efficient use of a really priceless equipment of men and machinery. Here you have, in the Institute, a large group of highly trained specialists. You may get specialists of greater reputation in particular fields elsewhere than in the Institute of Technology, but when you consider the variety of their accomplishments, the great field of knowledge that they cultivate in the realm of applied science, I doubt whether anywhere you will get so many men bound together in a similar way with such a power of service in the broad field of their specialties. It, the problem, though not new has reached a new significance for at least three reasons. One of these is that the Institute is just about to move to a new site where it is erecting costly laboratories which will be far more complete and better adapted for public service than what it has hitherto had at its disposal. Another is that it is just entering into an arrangement with Harvard University for coöperation in the field of engineering. That will increase its material resources, will add a great deal to its strength, and will give the added momentum that comes from the combination of two great institutions—thereby vastly increasing its powers of service. Apart from this, the community is at last awakening to the possibilities for service in this field. Intelligent men all over the country, men of all political parties and all shades of opinion, are seeing that the State must look more and more to educational institutions for public service, and certainly there is no group of men more willing to respond to demands of that kind than the Faculty of the Institute or its Alumni Association. I look forward with great interest to the report of your committee.

Basis of the Report

Within the limits of the short time this committee has been at work, it has endeavored to make an intensive study of the various factors of the problem. It has drawn on the available sources of help and information in this State and has studied the illuminating experience, both in this country and abroad, in the treatment of this problem. Every readiness has been shown to help the work of the committee, and we can here, in a summary, only give expression to our appreciation for the sources of help that have been at our disposal:

(1) On the educational side, we have consulted the President of the Institute, the heads of its various departments, the records, and have considered the views of educators.

(2) The interests of the State, in its entirety, were secured through the coöperation of the Governor, the heads of the various State departments and commissions, and through the free use of State records.

(3) On the part of the outside community, we have consulted the heads of public service corporations, consulting engineers, industrial managers, and the interests of labor. We have further

benefited greatly from the counsel of Mr. Felix Frankfurter, law officer of the Bureau of Insular Affairs, and recently appointed a professor of law at the Harvard Law School.

Scope of the Report

The committee has aimed to arrive at definite recommendations along lines indicated by the experience of this Commonwealth and that of other states. It has sought to make only such proposals as can speedily be put into operation, in harmonious coördination with the existing machinery of the State and the Institute, at an inappreciable cost, and with the assurance of large immediate returns to both.

To accomplish these ends, and, because of the great advantages in selecting for this study a limited field, the committee has confined the present report entirely to work in applied science, excluding that whole field of the Institute dealing with economics and sociology. On the side of the State, the committee has confined itself entirely to the lines of coöperation with the machinery of the State government alone, and has not broadened its present survey to take in the equally urgent needs of municipalities, towns and the people at large.

We are aware that the limits we have thus set ourselves are merely artificial and temporary. Any plan which is ultimately worked out must include not only the relation between the State and this Institute, but between the State and its other educational facilities; not only the relation between the State and the Institute, but between all the other agencies of the State and this Institute—all as a part of State-wide coöperation between the existing and developing educational institutions on the one hand, and on the other, the needs of the people as a whole, expressed through their State government, their municipalities or town governments, through private associations, and, in many cases, through individual needs.

I

From Its Inception, the Institute Was Intended to Serve the Scientific Needs of the State and Its People

The Massachusetts Institute of Technology, by the Act of April 10, 1861, was granted land and a charter "for the purpose of instituting and maintaining a Society of Arts, a Museum of Arts

and the School of Industrial Science, and aid generally, by suitable means, the advancement, development and practical application of sciences in connection with Arts, Agriculture, Manufacture and Commerce." That the "suitable means" would be such as to bring the Institute in immediate relation with the public is indicated in the outline of the plan of the Institute prepared by William B. Rogers, its founder and first President:

> The Institute of Technology would form itself into a department of investigation and publication intended to promote research in connection with industrial science.

In his report of 1864, President Rogers speaks thus of the laboratory work of the Institute:

> While intended primarily for the instruction of the students, these laboratories will be used for the prosecution of experiments and investigation on subjects referred to them by the committee of the Museums, including the examination and testing of new machines, and processes, and the conducting of original researches in the department of applied science.

This public conception of the Institute's field of work is expressed by the various Presidents who succeeded Rogers. In 1889, President Walker said:

> From lack of means, we have to deny ourselves many opportunities for undertaking work which is greatly needed by the community;

and speaking specifically of what could be done in the department of industrial chemistry, he adds:

> In many other departments, we are only waiting assurances of pecuniary support to undertake the work of instruction and of research, which will be of great advantage to the Commonwealth and the country.

Such needs were emphasized again and again by President Pritchett. Acting-President Noyes, who followed him, stated the matter briefly:

> Without sacrificing its national scope or its own independence, the Institute should, therefore, constantly strive to serve the State in every possible way—in the development of its natural resources, in the improvement of its industrial processes and its transportation facilities, and especially, in the solution of its educational problems. In all these respects, it should stand to the Commonwealth much in the same relation as do the progressive State Universities of the Middle West.

President Maclaurin put the matter thus in his report of 1912:

> Were it less hampered financially, it might render great service to the State by establishing a number of testing and research laboratories—it might extend such instruction as is now given by its teaching staff in the Lowell School for Industrial Foremen, it might organize, in various cities in Massachusetts, scientific instruction,

relating to important specific industries, thereby greatly extending the scope of its influence and of its usefulness.

There is here a constant recognition on the part of the Institute, since its foundation, of the responsibility it has in helping to solve the scientific problems of the State government directly and through close contact with the State government and with other State agencies.

II

The Past Fulfillment by the Institute of Its State Functions

This continuing recognition of the Institute's relation to the State and the people of the State has been in constant process of realization, as fast as opportunity presented itself, and as far as facilities and funds permitted.

The services performed by the Institute fall into two divisions: (a) work done by the Institute in its corporate capacity, and (b) work done by individual members of its instructing staff.

(a) In the first class are to be found, among others, two historic activities of the Institute, each of which constitutes a contribution of untold value to the well-being of the State. As far back as 1874, Professor Nichols reported that the department of chemistry had been asked for aid in the "solution of problems arising in the various departments of the State." The work took definite form in 1887, when, at the request of the State Board of Health, the department of chemistry took charge of the chemical investigation of the water supply of Massachusetts, carried on under the direction of Professor Drown and Mrs. Richards. This investigation continued for a period of ten years, during which time nearly twenty thousand complete analyses of water were made for the State. President Walker said of this work in 1890 that it is

> The most valuable contribution to our knowledge of natural waters that has ever been made in this country.

The biological department soon entered the field of State co-operation. Professor Sedgwick writes:

> In 1888, the Institute was called upon by the State Board of Health on the biological side of the investigation it had recently begun on purification of sewage at the Lawrence experiment station.

The biological department responded to the summons and for the next eight years, Professor Sedgwick and his associates de-

voted to this work of the State a very large share of their time and energy. The Institute's laboratories of bacteriology and sanitary science, during all these years, were largely devoted to this State work and in them went forward inquiries concerning the purities of water, milk, ice and gas, sewage, work on typhoid fever and many other diseases, bearing directly on the life and health of the people. The results of these studies have undoubtedly helped to make Massachusetts the leader in the United States along these lines. (Detailed statement of this work is set forth in Exhibit "B".)

(b) In addition to these activities, the committee found that every department of the Institute furnished men to serve on various State Boards and Commissions. An analysis of the reports of the Institute from its foundation showed that this side of the Institute's coöperation with the State has been continuous, extensive and highly valuable. We have summarized in the appendix a partial list of the services thus rendered by the Institute. (Exhibit "C.") The sum total, both in volume and significance, is very large. It is important, however, to point out that this work has been done in an unsystematic, episodic, isolated way without proper realization on the part of the State or the public of the extent and importance of the work done by the Institute. There has thus been involved a necessary loss of efficiency to the State and to the Institute. Work that should be systematic and continuous has been fragmentary and incidental. A study of this phase of the relation of the Institute to the State in itself makes clear that the time has come to formulate this relationship and to extend its scope.

III

Present Needs of the State for Adequate Scientific Aid

Perhaps the most significant characteristic of the modern progressive State is the extent to which science is harnessed to government, and, correspondingly, the extent to which science *is* utilized by the State is an accurate index of its efficiency. The increasing superintendence by the State of the affairs of private people, the State assumption or oversight of activities hitherto left solely to the individual, in a word, the enlarged scope of the modern social state is necessarily dependent upon the accumulation of authoritative and unbiased facts, and the ready, easy and

comprehensive utilization of such facts by the State. Statecraft is gradually ceasing to concern itself with differences as to political theories, and consists more and more in the speedy and effective application of facts developed by science for the betterment of life.

This holds true for the three great conventional departments of government—the legislature, the executive, and the judiciary. All alike, though in different ways and to different degrees, do and increasingly must draw upon the practical scientist for the effective discharge of their functions. Legislation in a developed state like Massachusetts should be scientific in the sense that it be founded on an adequate body of ascertained facts, justifying the establishment of legislative rules. The legislative acts of 1913 are a fair index to the extent to which scientific knowledge is or should be the basis of law-making. The Legislature of that year passed about 850 acts and resolves. Of these, at least 250 bore directly on applied science; that is, applied science alone could furnish the information which would justify such legislation. Applied science thus indispensably enters into the ground work of legislation.

But legislation, to be effective, must be vitalized by administration. Legislation of this character merely lays down broad standards, leaving it to administration to fill in the details. Therefore, again, the State must enlist the coöperation of the practical scientist. Reference to a large number of the hundred odd commissions in the State of Massachusetts and the problems with which they are charged, will show the pervasive extent to which the results of the laboratory, the results of the scientific worker, enter into the work of such commissions. (Exhibit "D".) The various commissions enforcing laws relating to health, industry, labor, transportation, weights and measures, correctional institutions, agriculture, finance, city planning, purchases of supplies, rivers and harbors, dock development, highways, are, in truth, but State agencies of applied science.

Likewise, modern judicial administration, certainly that side of it dealing with the enforcement of laws relating to insanity, the criminal law, and laws concerning domestic relations, to be of social value, must be supplemented by disinterested scientific advice. In this important field of the State's activities, there should be available the necessary body of scientific information so that the courts may act by the light that modern science furnishes.

We have thus, very briefly and very inadequately, sketched the predominance that science plays in the modern state. In all its aspects, we are in the pioneer stages. We are dealing with actualities and not with prophecy when we say that the scientific spirit and the utilization of scientific facts are bound to be increasingly pervasive. Encouragement of science by the State and the use by the State of its scientific resources will increasingly be the surest index of the progress of the State.

IV

Experience of Other Localities Proves that Official Alliance between the State and Its Scientific Institutions Alone Meets the Needs of the Modern Progressive Community

The pressure of the relative poverty of the states of the Middle West and their comparative paucity of trained scientific men, have compelled them to organize such scientific material as was available. The experience of these states was found to be that the State could discharge the demands made upon it only by working out a scheme of official and permanent coöperation between itself and its scientific institutions. The result is that, in about a dozen of our states, notably Illinois, Iowa, Kansas, Minnesota, Wisconsin and Indiana, the scientifically equipped educational institutions of the State are, in effect, the scientific bureaus of the State. The form which this university work takes is manifold and differs, of course, according to the different conditions existing in the different localities. We have indicated in the appendix the work done by some of these institutions. (Exhibit "E".)

It needs hardly to be said that the conditions in Massachusetts are totally different from the conditions prevailing in these communities, and it would be wholly unscientific to pattern our State policy bodily or in detail upon their machinery. But Massachusetts is fortunate in being able to draw upon the experience of those states as to the underlying principles of the utilization by a State of its scientific resources, leaving it for ourselves to work out, in the light of our local needs, our local traditions, and our local equipment, the details, the manner and the scope of such coöperation in Massachusetts. The spirit which guides such coöperation, the use it plays in the work of the State, has been set forth

with great clearness by Dean Goss of the University of Illinois, a man preëminent in this work and speaking for an institution which has been very successful in discharging its State function. Coming from an alumnus of the Institute, his remarks are particularly pertinent. Dean Goss says:

In general it may be said that the Governor and State officers recognize the University as constituting the scientific and technical bureau of the State. The College of Engineering responds to requests from the Governor for information touching questions of public interest which fall within its field. Such questions may affect the public health, may concern the maintenance or the stability of State buildings, the significance of legislation touching any phase of the engineering interest which may be proposed, for example, a bill to license engineers, or providing for the inspection of steam boilers could hardly survive the legislative process without having contact with the college of engineers. Members of the university faculty not infrequently appear before legislative committees at the request of the Governor. County officials confronted with exceptional problems such as may be involved by the building of a bridge, or the erection of a county building, may ask for and receive advice from the university. City officials operating public service plants are continually finding themselves in need of help and they call upon the university. Public service corporations and individual manufacturers, if confronted with peculiar problems, have come to know that they are likely to be helped by an appeal to the university. A large manufacturer of terra cotta, having a contract to deliver white glazed tile, was appalled to find his kilns yielding pink tile. He appealed to the College of Engineering and its professor was able at once to discover the source of trouble. Service of this kind is, ordinarily, in the nature of first aid. The university does not undertake to perform a continuing service such as would be rendered by a consulting expert. Its purpose ordinarily is to get the needy party in touch with those who can serve them thoroughly and well. For example, the chairman of a town board finds trouble with his electric lighting system, or he is urged by people having commercial interests to change from one form of lighting to another. He appeals to the university for advice and the university sends a representative to look over the ground and to tell him what he ought to do. If the problem is a simple one, a half day's interview is, perhaps, all that is needed. If more complicated, he is given the addresses of engineers, any of whom would be capable of studying his problem and giving him safe advice.

(Dr. Goss' statement will be found in full in Exhibit "F".)

Equally illuminating is the experience of Germany. Like Massachusetts, Germany is a manufacturing state, depending for its welfare upon the highest efficiency of its industrial development. After the industrial difficulties following the Franco-Prussian War, the necessity of developing its industry became acute. This condition required that some means be devised by which the prosperity of the country would be placed on a secure and stable basis. The result of this national purpose was the

establishment of a system by which coöperation between the State and its scientific institutions was made compulsory. In other words, Germany unified its scientific instrumentalities, and rendered them, in effect, parts of the State machinery. More than that, Germany goes beyond the American experience by indicating how easily machinery by which the State utilizes its scientific institutions can be extended so as to include, in its beneficent scope, the municipalities, semi-public organizations, and private industries. In a word, the scientific resources of the State act as the connecting link between the State and its prosperous industrial development.

Former President Pritchett has set forth in detail the working of this system which we have thus briefly summarized, in a paper embodied in the appendix (Exhibit "G").

V

The Ability of the Institute to Supply the Scientific Needs of the State

The Institute, as a pioneer in the laboratory method of instruction, has developed a plant, the excellence of which has world-wide recognition. It is about to supplement this plant by the erection of new buildings and laboratories vastly enlarged and more amply equipped. Since its inception, the Institute has been alive to the need of laboratory instruction and research as the very foundation of maintaining its preëminence in the field of applied science. There has also been a constant recognition of the importance of fully equipped engineering shops for training its students and for the investigation of problems in their practical aspect. The Institute has, therefore, dealt in a systematic and organized way with the very scientific problems which now confront the State. It thus has available the results of many years of scientific thought, as well as the experience derived from the application of scientific principles to practical problems.

At present, the system of laboratory and shop instructions in the Institute includes the following:

The Engineering Laboratories, including the Laboratory of Applied Mechanics, the Steam Laboratory, and the Hydraulic Laboratory.

The John Cummings Laboratory of Mining Engineering and Metallurgy.

The Kidder Chemical Laboratories.

The Research Laboratory of Physical Chemistry.

The Research Laboratory of Applied Chemistry.

The Augustus Lowell Laboratories of Electrical Engineering.

The Biological Laboratories.

The Sanitary Research Laboratory and Sewage Experiment Station.

The Rogers Laboratory of physics, including Laboratories of General Physics and the special Laboratories of Heat Measurements, Physico-Chemical Measurements, and Electro-Chemistry.

The Geological and Mineralogical Laboratories.

The Hawaiian Volcano Laboratory.

The Mechanical Laboratories.

The functions of these various laboratories, the nature of the work with which they are occupied, the practical problems of State and private industry with which they deal, are set forth, in detail, in the appendix (Exhibit "H").

One of the essential parts of any investigation is the ready accessibility of the literature on the subject, in other words, the permanent record of past experience on that subject. Governor Walsh, in his statement before this committee, had occasion to refer to the handicap felt by him and other officials of the State government through the failure of the State to possess, at easy access, the ready literature on the various problems that come before them. Again, the Institute is fortunate in having adequate libraries, in certain respects preëminent, in the various branches of applied science with which it deals. Here is a vast storehouse of material which, if placed at the service of the State, would be of inestimable value; here is a vast storehouse of material within easy reach of the State, and which every consideration of the State's well-being requires *should be* at the disposal of the State. The appendix enumerates, in detail, the various libraries and their equipment. (Exhibit "H".)

But no matter how valuable the institution, its eventual efficiency depends upon the personnel which guides it. On the side of its personnel, no State in the Union has ready to hand a better trained, a more public-spirited and more widely experienced corps of scientific men in its institutions than Massachusetts. As for the Institute, we are fortunate in having as President, a man who combines acknowledged scientific eminence with great

administrative capacity. On the teaching force, the Institute numbers men of international standing in their respective sciences. The instructing staff numbers in all some 253 men (including eleven research assistants who are not teachers), of which 114 are members of the Faculty. This Faculty will be enlarged in numbers and enriched in authority and experience as the result of the recent alliance with Harvard, whereby the staff of its Graduate School of Applied Science will become an integral part of the Institute's Faculty. We have set forth in the appendix a full list of the instructing staff and the nature of their work. (Exhibit "I".) It has been the policy of the Institute to encourage this teaching force to work on fields outside the academic. The teaching force has extensively served as consultant advisors, in professional capacities, and, as we have seen, in various public capacities. As a result, these men have had their outlook broadened, their grasp of public problems extended, and they have acquired the habits and the viewpoints of the man of affairs as well as the scholar.

Equally fit and ready for the state service is an admirable student body of some 1700 men. In ability, in training, in earnestness of purpose, in eagerness for work, the students of the Institute are its very life. During the first years of student work, emphasis naturally falls on the general principles of the sciences, though, of course, efficient training calls for constant coördination of theory and practice. In the last year, especially, the emphasis shifts and the aim is to apply the knowledge acquired to the practical problems of State and industry.

Here is an enormous opportunity for the State to accomplish two things—first, to enable the training of students to be as practical as possible by affording the men better opportunity to work on definite State problems, and, secondly, to benefit the State by having trained, keen, young minds directed to the solving of its problems. Just as the Federal Government has drawn on the various schools of forestry for student foresters, to the great advantage of itself as well as the forestry profession, so the situation invites the formulation of a scheme whereby the state should utilize the potentialities of the Institute student body, to the advantage of the State as well as the advantage of the students. Educationally, this is very important. We sometimes overlook what is the common experience of the undergraduate—his hunger

and thirst for trials and his continual worry and doubt of his ability to meet the world, the insistent craving to put something out as a change from constantly taking in. Here is a chance for the State to furnish to students this strength, and, at the same time, gain for itself the benefit of their trials.

In fact, the whole history of the Institute shows that the Institute has given to the State, and that the State has freely drawn on the Institute. The State has availed itself of the Faculty of the Institute; the State has availed itself of its laboratories, shops, and experiment stations; the state has furnished problems for the student body. But all of this work has been done in an incidental and casual way. There has been coöperation, in effect, but co-operation undefined, unguided and fragmentary. It has lacked the stimulus of continuity, or organization, the spur of recognized State service. The time has come to formulate the union, to make it official, to the end that the Institute may be strengthened in power and prestige, and that the State may derive in full the benefit at hand.

VI

Available Fields of Coöperation

We do not presume to indicate all the forms of activities which coöperation between the State and the Institute can take, or will take, as soon as the principle of organized coöperation is once recognized and made effective. Time and experience will constantly enlarge and improve the interplay of State and institutional needs and energies, and will constantly increase the reciprocal services. Essentially, such a system is a matter of evolution to be furthered as experience indicates and guided by some organization specifically entrusted with the task of overseeing the work. However, the present preliminary survey of the situation makes it obvious that the needs of the State invite certain fields of work which the Institute is capable of fulfilling at once and which the State cannot otherwise adequately perform. We instance a few of these fields.

(a) *Laboratory of Authoritative Standards.*—In a variety of ways, under a variety of conditions, there constantly is presented to the different agencies of the State, the need for some authoritative, unbiased, disinterested determination of scientific facts. In the purchase of State supplies, in the solution of State-wide transportation problems, in the determination of standards for public utility

products and the discharge of public utility functions—in these and in countless other ways which suggest themselves, resort must be had to dependable scientific data.

These broad problems cannot, as a rule, be ascertained in the routine laboratories of the State. They are not intended for that purpose. For one reason or another, they are lacking in the necessary equipment of men and machinery. The commercial laboratories are likewise, as a general rule, unfitted to assume this task, either because they have not the necessary scientific facilities of coördinated laboratories, so as to cover all the branches of applied science, or because they lack the authoritativeness that comes from an official, disinterested, non-commercial laboratory.

Scientific organizations like the Institute can normally discharge this function for the State. Scientifically, it is equipped to undertake the task, because within its field it covers all the branches of applied science and is thus enabled to dispose of these complex questions from all the angles from which they must be considered in order to reach a comprehensive result. It has the necessary plant, the trained personnel and the strength that comes from long, tried and successful experience. There is, in other words, scientific validity to its findings. Equally important, however, is the public authoritativeness that attaches to the conclusions reached by the Institute, for it represents, not only the best scientific thought available, but the viewpoint of a disinterested, unbiased, and non-commercial authority. Being outside of the field of interests and contention, it secures public sanction for its findings. This is a most important consideration and one that has been long recognized. Frequent resort has been made to the Institute to act as arbiter in disputes. Appeal has been made to it as such arbiter, both by the State and by the outside community. Large public service corporations, themselves equipped with ample laboratory facilities, have come to the Institute for findings, which, by force of the Institute's authority, would satisfy the community. A few instances will indicate the range of service that this field would cover if fully developed and given official sanction.

(1) Recently, automatic gas extinguishers were put on the market by certain manufacturers. The State Gas and Electric Light Commission, in the public interest, called upon a member of the Faculty of the Institute to pass on these extinguishers.

They were rejected. This finding was respected because of its authoritativeness.

(2) The State Board of Health suspected brewers of having put fluorine salts in beers and instituted proceedings against them. The brewers disclaimed knowledge of such practice and called in Institute chemists to pass upon the issue. These chemists found that the fluorine salt in fact was not an extraneous matter, but came from the original grain, and this ruling was recognized and concurred in by the State and entered as final.

(3) In the 90's, the Metropolitan Water Board had no standards for testing iron pipe, and was not equipped to establish standards. The engineers, thereupon, asked the assistance of members of the mechanical engineering department of the Institute. As a result of their tests, the State set up complete specifications covering this material to the great gain of the State and the community—a gain which is continuous to this date.

(4) Insurance companies discriminated against concrete construction, when that material first appeared on the market. In the middle 90's, members of the Institute staff established the superior fireproof quality of concrete construction. This finding was vigorously protested by a number of insurance companies and manufacturers of other products. The finding, however, prevailed, and the insurance companies have yielded to the authoritative opinion obtained at the Institute.

Why should not the State, which is but the community organized, utilize as a regular system this machinery for ascertaining authoritatively, in the first instance, facts of such vital interest to the community? It is evident that this would avoid a great many sources of controversy, it would insure prompt service to the State, it would facilitate the settlement of controversies once begun, it would secure the enjoyment by the community of available scientific improvements and thus make, in the most striking and extensive way, for economy and efficiency in its widest sense.

By utilizing the equipment of the Institute, ready to hand for such purposes, the State would thus be enabled to meet the demands upon it, which we have pointed out. Furthermore, such a policy would stop waste, for at present these laboratories are utilized to their full extent only a portion of the time. In engineering terms, their load factor is low. By proper arrangement of the Institute's work and the State's work in harmony with one another, the

investment, amounting to millions, would result in increased return, to the benefit of the community as a whole without impairing the primary usefulness of these laboratories as instruments of education, and without appreciable additional financial outlay. There would be other important by-products to such a system. For such an official recognition of the need of scientific standards on the part of the State would stimulate scientific thought and make for the wider recognition of the use of scientific methods in business and industries. While, therefore, the State itself might make less use than it does now of commercial laboratories and the outside expert, the demand for commercial scientific work would be vastly increased because of the impetus given to scientific investigation and the scientific ascertainment of facts. In thus giving official sanction to the need and scope of scientific methods in modern work, the State would quicken and extend the whole field of science.

(b) *Utilization of Teaching Staff in Scientific Work of State.*—Just as the physical plant is ready to do the State's work, so the State should have available in the teaching staff of the Institute, *ex-officio* officers of the State for its scientific work. A proper union should be made between the State and these scientific officials. Adequate steps should be taken, machinery should be devised, so that the State may use freely and systematically, on its various legislative and administrative committees, under properly prescribed conditions and so far as they are available, the different members of the Institute specially equipped on a given subject matter of State concern. It is immaterial what the specific technical relation between such a teacher and the State agency shall be, whether as a controller or an adviser. The different situations must govern the character of the relationship. The plain wisdom of the situation is that the State should utilize these valuable scientific advisers, and that they should be officially what they are, in fact, the scientific servants of the State. They would, in truth, be much more than individual coöperators of the State. Designated for service, in each instance, by the President, as representatives of the Institute, they would, in the discharge of their responsibility, have back of them the strength and the prestige of the whole institution.

(c) *Research Work Directed to State Problems.* We have already pointed out that adequate research work is the necessary founda-

tion in the training of men for the applied sciences. If the Institute becomes, in effect, the official scientific bureau of the State, there will, of course, be given to its research work the stimulus of more intimate contact with the vital scientific problems of public concern and corresponding definiteness of direction in its work. This will enhance the practical training received by the student body and, at the same time, accumulate a great mass of material bearing directly upon the problems of the State.

(d) *Technological Information Bureau.* There is increasing need on the part of State officials, as well as the public at large, for guidance in meeting scientific questions. There should be some official bureau of information to which authoritative resort can be had, not for the actual solution of problems but for the way in which to approach their solution. The resources of such a bureau, logically, are to be found in institutions that have at hand the adequate literature and the results of experience and comprehensive contact with the various branches of applied science. The object of such a bureau should be to furnish the State and the public, without charge, advice which may be given without substantial expense, and to answer minor questions of common knowledge to scientific men, and to suggest persons or books to consult, where that seems advisable, and, in various ways, to enable the enquirer to meet his problem as directly and intelligently as the case permits. It is plain from this statement, that this does not contemplate that the Institute should engage in consultative scientific work. Of course, such commercial undertaking is wholly foreign to its purpose, and would hamper its authoritative standing. That work must be left to the outside practitioner and to commercial laboratories. In fact, what such a bureau will do is to increase the demands for expert scientific assistance, by pointing out the needs, and by directing the quickest application for each need. The Institute now is, in an informal and unorganized way, doing work of this character. It should do this work, but it should do it as a recognized part of its organization and as a branch of its State work.

(e) *Reference Bureau.* At the first meeting of this committee, Governor Walsh expressed the need by the State for a permanent reference bureau, similar to the legislative reference bureau in Wisconsin, to which resort could be made for aid by the legislative branch of the government. So far as the scientific work of the

State goes, undoubtedly, the Institute affords the most available facilities for the creation of such a reference bureau. It may well be that such a plan can be evolved in the course of time. The plan is undoubtedly feasible, the need by the State is undoubtedly growing. It requires for its fulfillment only the necessary financial arrangement.

(f) *Publication of Scientific Information.* By a system of cooperation such as is here urged, the large mass of scientific information will accumulate in available shape which, in a true sense, is the property of the people of the State. Means should be devised to disseminate such information as clearly and as extensively as possible. In other words, provisions should be made for the publication of authoritative popular documents and bulletins on matters of scientific importance to the people of the State, in much the same way as the United States Department of Agriculture, State universities, and other educational institutions publish authoritative bulletins on problems of importance to the farmer.

(g) *Interlocking Laboratory Training for Students and State Officials.* There is a growing interchange of experience throughout the country, in national and city governments, as well as in private enterprises, between the educational institutions and the practical outside world. Undoubtedly, certain of the State laboratories of especial character could be utilized in giving practical experience to the students of the Institute similar to the experiments which are carried on in sanitary lines by the College of the City of New York, and on the other hand, minor officials and employees of the State laboratories should be afforded opportunity for further study in some of the Institute's laboratories.

(h) *Establishment of Student Grades for Temporary State Engineering Positions.* There is, at present, a frequent demand made upon the different departments of the State for engineers for temporary appointment, and we are informed that the Civil Service Commission is frequently unable to make sufficient recommendations from the regular certified list. We believe that the Civil Service Commission would receive favorably a suggestion to establish a student grade for temporary engineering positions, the length of service not to exceed four months and the positions to be opened to students who have passed certain examinations in recognized engineering schools in the State. We believe that from this student grade, temporary appointments should be made in

the various State organizations, such as the Transit Commission, the Highway Commission, Directors of the Port, the Metropolitan Park Commission, the Public Service Commission.

Means of Coöperation Recommended by this Committee

We have outlined the need for coöperation and the principles which call for its acceptance and indicated, by way of illustration, some specific forms which such coöperation should take. These large ends, we believe, can be carried into effect by the following plan of procedure.

(A) We recommend that legislation be asked for, which shall increase and regularize the service of members of the Faculty of the Institute (and other institution, to be specified in the Act) on State Boards and Commissions, either as members or in an advisory capacity. Such legislation should be applicable to all State Commissions which conduct work requiring scientific or technical skill or advice.

The compensation for such service should be fixed by the commission concerned, subject to the approval of the President of the Institute or the President of any other institution named in the Act. In case of failure to agree as to this compensation, the commission should be left free as at present, in its discretion, to employ experts outside of this particular field of choice.

The compensation received for such service should be paid directly to the Institute and should be divided between the Institute and the members of its instructing staff in such a way as shall be determined by the President of the Institute, or by a committee chosen by him for that purpose.

The clearest administrative wisdom suggests that the authority and responsibility for this use of the teaching force of the Institute be vested in its President. This is necessary from the educational standpoint, for the President alone can have in mind the interest of the entire Institute and the degree to which its plant and personnel can be fitted into the State's needs in each instance. He alone is enabled to pass upon the fitness of the personnel for specific work and to determine what representatives of the Institute can be clothed with the full authority of the Institute. On the part of the State, the State is equally safeguarded in having the person best fitted to judge, pass on the competence of the specific form of coöperation.

(B) We recommend that the use of the laboratories and shops of the Institute be placed at the service of the state, under appropriate conditions, which will safeguard the educational purpose of the Institute and the administrative needs of the state. No direct charge should be made for the use of these laboratories or shops, but the State should bear the expense of all labor and material use for State work, plus a fixed sum to be added, to cover incidental expenses of wear and tear and depreciation, the amount to be determined, in each instance, by a committee appointed by the President, for that purpose.

(C) We recommend that there be established a Bureau of Technical Information. This bureau shall, without charge, furnish to the State and the public, advice which may be obtained without substantial expense, either in furnishing ordinary scientific information or indicating the lines of inquiry to be pursued.

(D) We recommend the appointment by the Governor of a permanent committee on coöperation to carry into effect the foregoing recommendations, to study further the needs of the State as to closer coöperation between the State and the Institute and additional means of making such coöperation effective. It may be that such powers should be delegated to an existing commission of the State. Such committee should act in coöperation with a similar committee to be named by the President of the Institute. Of course, there is every reason to look forward to a system of coöperation, not only between the Institute and the State but between the State and the various other available educational institutions and the machinery here suggested has all the necessary flexibility to allow such other institutions, as they become integrated into the scheme from time to time, to appoint similar committees on coöperation and to act with the State Committee and the committees of the other Institutions. This committee would, in effect, be a permanent committee of ways and means on coöperation; and as the need would manifest itself for broadening the field of coöperation, between the governmental agencies of the State and its educational institutions, this committee would learn by experience to indicate the form which such extended coöperation shall take and wisely guide its development.

The various institutions of the State, thus harnessed to the State's interest, would constitute a great State University. Geographically diversified, possessing the momentum of valuable

traditions, the strength of long years of experience, their stability, their equipment, their moral influence through their great alumni bodies—all render these institutions units, which, if assembled, by a wise State policy, would form that coördinated system of educational facilities, which, in its broadest sense, is a university.

(E) Finally, we urge that this report be referred to the President of the Institute and Executive Committee of the Corporation with the recommendation that they give to this subject their consideration, as it is our belief that they will find here ample justification for taking appropriate steps leading to the realization of the plan herein embodied.

Respectfully submitted,

J. F. McElwain, *Chairman*,
D. C. Jackson,
M. C. Brush,
R. C. Valentine.

Volunteer Officers Wanted

The War Department of the United States is desirous of securing the services of graduates of institutions to which officers of the regular army have been detailed as military instructors, such graduates being favored by law in the selection of volunteer officers.

It is only when the militia proves insufficient to meet the call for volunteers that recourse will be had to the raising of additional organizations; while the appointment of officers rests in all cases with the President, at the same time great weight must attach to the recommendation of the governor upon whom the call for volunteers is made.

New York Technology Club Flourishes

Boston members of the New York Technology Club are using the club house very freely nowadays, and report that it is really a great privilege to have a New York home for their occasional visits, it is so thoroughly comfortable and so imbued with hospitality and good fellowship.

The out-of-door dining room is now open, and the location of the club, facing Gramercy Park, makes the club a very desirable place to stop in the summer months.

PROFESSOR RICHARDS RETIRES

After forty-six years of teaching Doctor Richards, a graduate of the first Institute class, becomes professor emeritus

With the close of the last term at the Institute, Professor Robert H. Richards, '68, retired from the active work of teaching which he has followed for forty-six years. He is made Professor Emeritus and receives the benefits of the Carnegie Foundation.

Professor Richards has been identified with the Institute since its beginnings, for he was a student in the first class, a graduate in the first group to receive the B. S. at Technology, following which he became assistant, 1868–1871, and then in 1871 took the chair of Mineralogy, in the department that afterwards developed into that of Mining Engineering and Metallurgy. He it is who developed the splendid laboratories at the Institute, and practised himself in the details of the various technical processes; he has been always at the head of his profession, advancing the technique by a number of important inventions.

Professor Richards was born at Gardiner, Me., August 26, 1844, but since his school-day life has been identified with Boston. His activities in any of the directions to which he turned them were always remarkable. In investigation he took up the jet aspirator, looked into amalgamation in the stamp mill, determined the curves of material settling in water, which established the fundamental principles of sorting ore by means of jigs and similar machines. In the same line are the determinations of the settling velocities of quartz and galena, the ground rock being passed into a current of water where the differential settling serves to sort the ore from the worthless rock. The details of various jigs and of the Wilfley table, another sorting device, were investigated by Professor Richards, whose latest work of the kind has been in a variation of the process termed "hindered" settling. Then he has stepped out of the strict province of mining and perfected for civil engineers a prismatic hand telescope for stadia work.

In addition to his work in the class room and laboratory Professor Richards has been in demand as an expert in mining mat-

ters and has used his spare time and vacations in professional work of the kind.

In the classroom Professor Richards has always been a personality of interest. His lectures have been such as to impress on his hearers the care with which they were prepared, and the teacher has been an example and a stimulus to his students for patient and painstaking work in the interests of accuracy. One of the Tech alumni, writing on the subject a few years since says, "These personal qualities in a teacher are sometimes of more importance to the future career of the student than are the actual subjects studied, and the successes that have been attained by many of his graduates have, I think, been due in no small part to these qualities of our mentor."

The laboratories of the Institute in the specialties cared for by Professor Richards were the first of their kind in the world and have been the model for many others since established. That their foundations have been solid and their upbuilding philosophical is shown by their success. A part of this has been through the attitude of Technology in giving as freely as possible of its best for the benefit of the world. It was in these laboratories that some of the first investigations were made of the treatment of ores of the Calumet and Hecla, and in return contributions from that mine aided in the equipment of the laboratories.

In the development of the courses Professor Richards has naturally been the guiding spirit. In his early days he was associated with the Summer School of Mining, established in 1871, and discontinued only recently when it was found possible to secure for the students the even better practise of vacation work in established mining plants.

Technology itself was a new venture in education and the establishment of novelties within the institution was the more difficult, so that there is more credit to men like Professor Richards, who had the vision to block out broad plans for the future and base them on sound fundamental principles. As the fruits of his labor he can now look out upon the world and note between six and seven hundred graduates, the greater part of whom have followed in their lives the profession selected at the Institute, and of these more than one-quarter have attained places of especial prominence, while forty or fifty are among the world's leaders in mining and metallurgical practise.

With all this activity there has been always that administrative labor in behalf of Technology that the heads of departments must give in the case of Professor Richards augmented by his assuming the duties of secretary of the Institute for a number of years in the late seventies, in addition to his work of instruction.

For the profession he has been always active in his studies and aid besides the advice he was able to give to the Calumet and Hecla, of which Professor Alexander Agassiz spoke in highest praise, a work that has been constant in an advisory capacity and was very active up to 1890, he was consulting engineer in the ore dressing mill of the Pennsylvania Steel Company, the Sulphur Mines and Railway Company of Virginia, the Longdale Iron Works, and the Firth, Sterling Steel Company. In 1905 he spent the summer on the West Coast in investigations for the United States Geological Survey.

His writings have been voluminous, more than one hundred titles being credited to his name by the bibliographers. These are largely technical, one, however, being "Notes on Assaying," which was printed for the use of the students, and another in its various editions, a treatise on ore-dressing, has become the standard work in the practise, and has been referred to by one competent to judge as "a valuable work of reference and a monument to his memory."

But best of all Professor Richards is a man whom everybody, instructing staff, students and the outside world which came into his sphere of influence all unite in appreciation of his unselfish and gentle nature, his patience and his forbearance and for the steadfastness with which he has held to his ideals through life. Such is the professor and student whom Technology is to lose as a teacher, but by no means as man. His life has been devoted to the Institute, his laboratories are those which he has created within the school, and relieved of the drudgery that is inseparable from the lecture hall, he will be the freer to give to the world the benefits of long experience.

INCIDENTS IN THE LIFE OF ROBERT H. RICHARDS

INVENTIONS.

Jet Pump for Vacuum.

Prismatic Stadia for Measuring Distances.

Classifiers for Classifying Ore in Water Current:
- The Calumet Classifier
- The Pulsator Classifier
- The Hindered Settling Classifier
- The Vortex Classifier

The Pulsator Jig.
Improved Table for Concentrating Sands.
New Banner for Concentrating Finest Sands.

DISCOVERIES.

The Weakness of the Plunger Jig, causing small capacity. The cause and the evil.
The Speed of the Pulsator Jig. Its cause, use, and adaptation.
Losses in Fine Concentration. Causes and Remedies.
The New Differential between Hindered and Free Settling.

WRITINGS.

Ore Dressing Treatise, 4 volumes. The first to completely correlate the work of concentrating mills for the United States.
Ore Dressing Textbook for the schools.
Many papers on professional subjects, but especially on ore dressing.

LEARNED SOCIETIES.

Member of the American Institute of Mining Engineers. President, 1886.
Member Canadian Mining Institute.
Member of the Mining and Metallurgical Society of South Africa.
Member of the American Academy of Arts and Sciences.
Member of the American Association for the Advancement of Science. Etc.

EDUCATIONAL WORK.

Pioneer in application of methods, of apparatus, and of material for teaching engineering subjects, making a scale of operation large enough to insure a sufficiency of conditions of commercial work and small enough to keep the financial burden to the school as well as the physical labor of the pupil, within bounds.

Tech and Gregory the Great

A member of the class of '85, who recently sent in a request for a Tech button to replace his old one, relates an amusing experience which he had at one of the New York clubs. He was introduced to a gentleman who, after looking intently at the Tech button in the lapel of his coat, inquired what notable thing he had done to deserve the decoration of Gregory the Great of Russia. There were very few of these buttons in America, he said, and he thought that he knew all the members of that order here. The '85 man told him of his mistake, but stated that he was as proud of the Tech emblem as though it were the decoration mentioned.

RALPH ADAMS CRAM

ARCHITECTURAL DEPARTMENT CHANGE

Ralph Adams Cram becomes Senior Professor in place of James Knox Taylor, resigned—Organization of the Department changed

President Maclaurin recently announced the resignation of Professor James Knox Taylor of the Department of Architecture. Professor Taylor's resignation has been made the occasion of a change of the organization as well as of the personnel of the department. His place as senior professor of architecture has been filled by the appointment of the distinguished architect, Ralph Adams Cram. Mr. Cram will continue the active practice of his profession and his presence in so important a position on the Faculty will insure that the school is kept in close touch with the problems of the day and the needs of the profession. Professor William H. Lawrence, '91, who has for many years been professor of architectural engineering in the department, will assume the position of chairman of the department of architecture and will be responsible for the administrative routine.

The majority of the instructing staff in the Institute's department of architecture have been graduated from the École des Beaux Arts or from the Institute itself, which has carried on the best traditions of the famous French school with such modifications as were necessary to meet the needs of this country. Mr. Cram's appointment will enable the students of architecture to see some of their problems from a somewhat different point of view. Many years ago, Mr. Cram was credited with a critical attitude towards the methods of the French school. During the last ten years, he has devoted a great deal of attention to the problem of the education of the architect, having served for some time as chairman of the Committee on Education of the American Institute of Architects. His investigations have brought him more and more into harmony with the educational system of the Beaux Arts, leaving him, however, sufficiently alive to its possible defects to safeguard him from following its traditions blindly.

It may, therefore, be considered as settled that Professor Cram does not contemplate any revolution in the system of instruction

at Technology. He voices it as his opinion that the methods of architectural education in the country can be improved here and there, and the same is true of public school and university education. But the "here and there" must be a matter of observation and the changes must be perhaps tentative and at all events in no wise hasty, and in any case must follow as the result of actual experience.

In reply to queries as to his policy in the department at Technology, Professor Cram said that, among other things, there should be constant consultation with leading members of the architectural profession in the city and the country, and particularly with the American Institute of Architects, as to the essentials demanded by the practice of the day. Education to be worthy of its purposes must satisfy these essentials, and it should be cognizant of the best tendencies of the architectural profession as expressed through the leading members in all schools of design. Architecture in America is continually advancing, and any school should be kept mobile and in condition to adapt itself to the development of architecture itself.

Professor Cram proposes to carry forward the high standards and traditions established by Professor Ware and continued by Professor Chandler, "men," he said, "who were the greatest forces in the development of architectural education in America." It was Professor Ware whose kindly advice turned the student Cram's thoughts seriously towards the profession which he has carried forward so successfully. "It was thirty-four years ago, since his kindly counsel was given to me, and I feel it a great honor that Dr. Maclaurin has asked me to be a successor and it will be my highest ambition to carry forward his traditions."

Professor Cram is already well informed as to teaching conditions in this country having been chairman for the past six years of the Committee on Education of the American Institute of Architects. The committee has been made up largely of men whose tendencies were toward the classic, but in no instance has it proved impossible to come to a unanimous agreement in fundamental matters of architectural education and design. The men on this committee were of the strongest character, John Carrere, Lloyd Warren and Zantzinger among them. He has been in prominent places in public work, for example, the chairmanship of the Planning Board of this city. He is president of the Boston Society of Architects,

fellow of the American Institute of Architects, associate of the National Academy of Design and member of the American Federation of Arts.

The foreign societies on whose roll his name appears include the Royal Geographical Society, the North British Academy of Art, and the Architectural Association.

He is one of the few American honorary corresponding members of the Royal Institute of British Architects, the others being Glenn Brown, Frank Miles Day, Barr Ferree, Professor W. R. Ware and Cass Gilbert, the last two a professor and an alumnus of Technology.

In entering his profession, twenty-five years ago, Mr. Cram was associated with Mr. Wentworth and five years later Mr. Goodhue became a member of the firm.

Mr. Wentworth died and Mr. Ferguson took his place. Last year Mr. Goodhue withdrew and the firm now stands, Cram & Ferguson. It has specialized in school and ecclesiastical architecture and many notable edifices and groups are from its office. At Princeton, where Mr. Cram is supervising architect, the special items have been the graduate college and the Cleveland tower, an expenditure of $700,000. Other constructions are the Rice Institute at Houston, Texas, which is erecting one after another the elements in a plant to cost about $6,000,000; and at Williamstown, Commencement Hall and a group of dormitories; the Women's College at Sweet Briar, Va., twenty buildings; Phillips, Exeter, two dormitories; and the library for the Taft School, Conn. All the rebuilding at West Point was done by the firm. In a competition in which ten American architects were invited to take part, the judges unanimously selected the Boston men, and the plans were approved by the Secretary of War and by President Roosevelt. The magnitude of this work was $6,500,000.

In ecclesiastical architecture, Mr. Cram and his associates are among the best known in the country with a surprising output. For two years he personally has been the consulting architect of St. John the Divine in New York City, while the entire work of the nave, to cost about a million, the Synod house, Bishop's house, Deanery, and a chapel of the chevet, are by the firm. The most sensational church has been St. Thomas, the largest and most costly parish church in the world where the expenditures have been $1,200,000 thus far. Then there are the Halifax cathedral,

Detroit cathedral, the pro-cathedral, Havana; and now under construction is the cathedral at Toronto. Besides these are Calvary Church, Pittsburgh, and Presbyterian churches in Cleveland, Chicago and St. Paul. One must not forget in this connection the Chapel of the Intercession, of Trinity Parish, which cost half a million.

The work about Boston, in which Bostonians will have especial interest, include the remodelling of St. Paul's; and the building of All Saints, Ashmont; All Saints, Brookline; the Second Unitarian, West Newton; and a Roman Catholic church in Fall River. Then there is the great Swedenborgian church at Bryn Athyn, near Philadelphia; and in addition there are public libraries in Fall River, Pawtucket and Nashua.

The fact that he has accepted the appointment at Technology is evidence of itself of his appreciation of the school, but in answer to a direct question in the matter Mr. Cram said that the Institute is a school that has produced results second to none in the United States. It is the oldest and most distinguished and is in better condition to maintain its product of the highest quality than almost any other one in the country. Of all the institutions that do not require an academic degree there is the greatest confidence in Technology. The Institute has a fine record and the best chance of developing into an ideal school of architecture in the United States.

Mr. Cram is of good old New England stock. His forebears settled at Longwood, Brookline, in 1634, and during the Anne Hutchinson excitement John Cram went with Elder Wheelwright to Exeter which they settled in 1637. Mr. Cram was born in this country, at Hampton Falls, in December, 1863. He received an honorary Litt.D. from Princeton in 1910.

His published works include a number of well-known books,—Black Spirits and White, Church Building (1901), The Ruined Abbeys of Great Britain (1906), Impressions of Japanese Architecture and the Allied Arts (1906), The Gothic Quest (1907), Excalibur; his latest work which is just from the press is, The Ministry of Art. Mr. Cram has in addition been a frequent contributor to magazines and professional publications and has lectured on architectural subjects through a wide area in two continents.

AERONAUTICAL ENGINEERING

New Course to be offered at the Institute next Fall—General description of requirements, instruction, laboratory, etc.

We take the following from the June *Bulletin* of the Institute:

Beginning with the academic year 1914–15, the Massachusetts Institute of Technology offers a graduate course on aeronautical engineering, leading to the degree of master of science. The course is open to graduates of the Institute in mechanical engineering, electrical engineering and in naval architecture, and to graduates of other institutions whose preparation is essentially equivalent to the work required for the bachelor's degree in one of the above courses.

It is believed that the design and construction of air craft is properly an application of engineering principles and for this reason instruction in aeronautical engineering is confined strictly to the application of such principles. Previous preparation in physics, mathematics, mechanics, strength of materials, and machine design is absolutely necessary. Such preparation is best obtained in the undergraduate engineering courses above named.

Students with required preparation may complete the course in one year's time, but it is recommended that when possible the student be familiar with advanced calculus and differential equations as treated in Wilson's Advanced Calculus and given in courses designated M37 and M38 in the catalogue of the Massachusetts Institute of Technology.

Students whose preparation is incomplete are recommended to spend one year in the Institute before undertaking the courses in aeronautical engineering.

Students who have not the mathematical preparation noted but who are familiar with practical engineering may be admitted to such courses as may appear advisable, but no degree will be granted.

The course in aeronautical engineering is designed to furnish training in the design and construction of air craft; dirigibles, aeroplanes, and hydro-aeroplanes. No attempt will be made to give instruction to pilots in operation and control of such craft,

but rather to train men who are already engineers to undertake the experimental development of air craft, their manufacture, repair and maintenance. To this end a sound theoretical foundation of rigid and fluid dynamics is essential in an art as yet comparatively unstandardized.

Each student will be required to design and prepare working drawings for an aeroplane and a dirigible. For this purpose a complete information file has been collected, and plans, photographs and descriptive matter are available for the principal European and American air craft. A special aeronautical library contains four hundred volumes and the leading French, German, and English aeronautical periodicals. Upon the completion of a design, the student will construct a reduced scale model and subject it to tests in the wind tunnel of the Aerodynamic Laboratory to determine its compliance with specifications and its probable performance.

The experimental laws of aerodynamics will be studied in the aerodynamic laboratory in such a manner as will develop in the student an appreciation of their importance in design of air craft, and the ability to make use of the published results of research in other aerodynamic laboratories.

The Aerodynamic Laboratory of the Institute consists of a wind tunnel sixteen square feet in section, through which air is drawn in a steady stream by a seven-foot four-bladed propeller. A velocity over thirty-eight miles per hour can be maintained. Models for study may be made about twenty inches in span and mounted in the tunnel in such a manner that a special balance will measure the forces and couples produced by the wind at various attitudes of the model. The balance is a duplicate of the aerodynamic balance developed after three years of work at the National Physical Laboratory, Teddington, England. It is precise to within one half per cent. The plans for the balance have most generously been presented to the Institute by Dr. Glazebrook, director of the National Physical Laboratory.

Wind velocity is measured by a Pitot tube connected to a Chattock micromanometer which is sensitive to a head of $\frac{1}{2000}$ of an inch of water.

The course in aeronautical engineering is attached to the department of naval architecture, Prof. Cecil H. Peabody in charge, and under his general direction is conducted by Assistant Naval

Constructor Jerome C. Hunsaker, United States Navy, who is detailed for this duty by the Secretary of the Navy. Courses in dynamics of rigid bodies and theoretical fluid dynamics are given by Edwin B. Wilson, Ph.D., professor of mathematics; and in explosion motors by Joseph C. Riley, S.B., associate professor of heat engineering. Special lecturers will deliver courses in wireless telegraphy and meteorology. Donald W. Douglas, S.B., is assistant in the aerodynamic laboratory.

The Law Relating to Volunteer Officers

The recently passed law for raising volunteer forces in time of war has the following provisions of interest to all graduates of Tech:

"That the volunteer forces shall be raised, organized, and maintained, only during the existence of war, or while war is imminent, and only after Congress shall have authorized the President to raise such a force; *Provided:* That the term of enlistment in the volunteer forces shall be the same as that for the Regular Army, exclusive of reserve periods, and all officers and enlisted men composing such volunteer forces shall be mustered out of the service of the United States as soon as practicable after the President shall have issued a proclamation announcing the termination of the war or the passing of the imminence thereof."

* * * * *

"That in appointing the volunteer officers authorized by this Act the President may select them from the Regular Army, . . . from the country at large, from the organized land militia of the District of Columbia, and, upon the recommendation of the various governors, from the organized land militia of the several States and Territories in proportion, as far as practicable, to their respective populations, and as far as compatible with the interests of the military service, from the localities from which the troops with which the officers appointed upon such recommendations are to serve shall have been recruited; *Provided:* That in appointments from the country at large preference shall be given those who shall have had honorable service in the Regular Army, the National Guard, or the volunteer forces, or who shall have been graduated from educational institutions in which military instruction is compulsory.

TECH NIGHT AT THE POPS

Alumni welcome the graduating class with an imposing stage spectacle and amusing initiation ceremonies

The crowd that assembled at Symphony Hall, June 9, was in high anticipatory spirits, for it was the occasion of the initiation of the class of 1914 into the ranks of the alumni. Other and less important episodes had happened to the class during their four years at Tech, but there remained the one great and important ceremony, which was to make them genuine, blown-in-the-bottle alumni of the Institute.

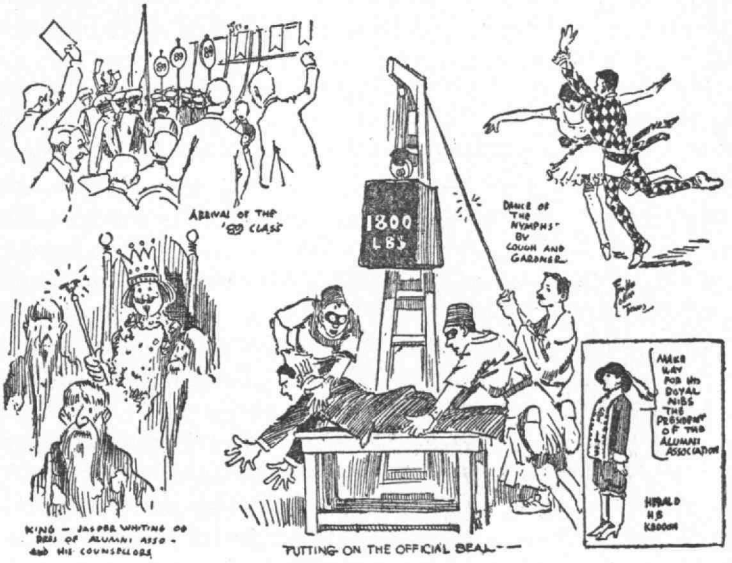
The audience was a brilliant one, filling the galleries of the hall, relatives or friends of Technology men. The floor was given over to the alumni. During the first part of the evening the orchestra was located, as usual, on the stage. Technology and class banners and ribbon streamers made the hall gay with color; and high above them all was the banner of the class of honor, the class of 1889.

Soon after eight o'clock the graduating class entered through the three doors at the rear of the hall, and amid the plaudits of their brethren took their seats in front of the stage. Soon afterwards appeared the class of '89, which had been holding a class dinner at the Harvard Club. The men were dressed in gowns of yellow and black, the class colors, and appeared with the class banner, escorting President Maclaurin. During the first part of the program there were special selections by the orchestra, and a number of Tech songs, which were led by V. M. F. Tallman, '14.

After the first group of songs came an intermission, and then the initiation ceremonies of the graduating class. The orchestra had been moved to the floor in front of the stage, and a setting showing the throne room of the king of the Alumni Association was presented to the audience. The lights in the hall were dimmed, and a herald and trumpeter announced that His Royal Nibs and court were about to enter. Then appeared the white-bearded councilors and attendants, in court robes of cardinal and gray, who preceded Jasper Whiting, president of the Alumni Association, enveloped in all his regal panoply. After the august assembly

had been seated, the king rose and after briefly stating the object of the convocation ordered that the neophytes be brought in.

They came into the royal presence carrying simple, childish toys, little rabbits, woolly lambs and other playthings, which they threw into the audience when commanded to discard childish things. The young men were then seated, and the king called for his trusty henchmen; thereat appeared Professor R. H. Richards, '68, the oldest graduate of the oldest class, who took a chair on the king's right, and following him, I. W. Litchfield, '85, as messenger and



As the *Journal* artist saw it

recorder, who took a chair on the king's left. The king then gave the candidates some excellent advice, and told them that a man is truly wise when he knows how to play the fool. The audience, he said, desired to know whether, besides the studies that concerned children, they knew something of the things that make up the true interests of grown men. Mr. Dorrance then conferred with the herald, and a number of acts were presented to be judged.

The program included a realistic boxing match between "Reddy" Treat, '14, and "Kid" Karns, '14. A "truly" prize ring was built on the stage, and a wonderful array of disreputable attendants proceeded to make ready for the fight. In the excitement of the

mill, the reporter lost all track of the number of rounds, but as stated by the referee, it was a fight to the finish. To all appearances it was a most serious affair, with the smaller man finally besting his heavier opponent and putting him out with a knockout blow. As a matter of fact it was a well rehearsed program, very cleverly staged.

The next act, which was a dance by Gardner, '17, was similar to the dance he gave at the Tech Show at the Opera House. It was a most unusual exhibition for an amateur, and it was heartily encored; then followed an exhibition of modern dancing by Whitney, '16, and "Miss Smith," the program winding up with a dance of the nymphs by Gardner '17, and Couch, '17.

The king and his councilors seemed to be highly satisfied with the examination of the candidates, and on the vote of the assembled alumni they were admitted into the ranks of the Alumni Association. Thereupon, the recorder and messenger ordered the great seal of the association brought on. The seal was an awe-inspiring and wonderful affair built with a drop-hammer effect, having a weight labeled 1800 pounds. Husky attendants took the struggling neophytes, one by one, and placed them on the table, and the weight, which was made of cardboard, descended upon their devoted backs. As they were taken from the machine, each one was hall-marked with the words, "A Man."

The king presented the Tech flag to the class through his proxy, Professor Richards, whereat the entire class rushed to support the flag, and a long Tech yell was given for '14. The class responded by cheering the alumni, and then the cheer leader started the Stein Song, and all joined in. A long cheer for Technology wound up the spectacle.

The Aero Club of America Interested

Coincident with the announcement by the Institute of the establishment of a course in aeronautics, the Aero Club of America announced that it would award medals of merit to students distinguishing themselves in such a course. The secretary of the Aero Club stated that the organization would do all in its power to help this new department in instruction in the belief that here is a field that is worth all the encouragement that can be given it. The members of the club will use their endeavors to induce bright young men to take up this special field of work.

ELECTRICAL ENGINEERING RESEARCH

Special Research Committee which meets and reports monthly —Wide variety of problems undertaken

The activities in electrical engineering research at the Massachusetts Institute of Technology have developed very rapidly during the past year and a noteworthy extension of the organization for administering the researches has recently been effected. This has been aided by the coöperative agreement between Harvard University and the Institute of Technology whereby the departments of electrical engineering in the two institutions were practically merged.

By this new organization for the research laboratory there is created a research committee, to whom reports are made upon the progress of the various researches. The committee comprises the following members of the electrical engineering department staff: (1) those who are supervising or are actively engaged in research work in the research laboratory; (2) those who are personally carrying on research work in any branch of the department; and (3) those who have completed a recognized piece of research work during the preceding year. The research committee, as a whole, will meet once a month during the school term, such meetings being open to all members of the department staff. The chairman of the research committee is also chairman of the executive committee of three members, who will carry on the executive work of the general committee.

It will be noted that by this arrangement the research activities of the department will be brought into close relation with the regular teaching work. Thus, any member of the staff, whether professor, instructor, or assistant, who desires to carry out any original investigation, may become identified with the research work through the research committee. Some of the special resources of the research laboratory which have not been designated for use in a particular investigation may be used in providing such a man with apparatus and other laboratory facilities. Even if a member of the department staff is not able to devote a considerable portion of his time to an experimental investigation, he still

has the opportunity of offering suggestions upon the conduct of investigations which are being made by others. From the standpoint of the younger members of the staff, the opportunities of entering the enthusiastic atmosphere which accompanies the successful conduct of original research are most unusual.

The staff of the research laboratory at present includes six research associates and assistants who give their whole time to research. This number will be increased to nine on July 1, 1914. In addition to the work of these men, who are appointed by the Institute, the theses of four students who are candidates for advanced degrees in electrical engineering have been carried on in the research laboratory during the past year.

The study of a wide variety of problems has already been undertaken by the Laboratory. During the past year the collection of data upon the study of the relative economic fields for electric, horse, and gasoline trucks, which was begun in 1911, has been completed; an abstract of the results of the investigation has been presented, and the final report will probably be completed early this summer. The study of the methods of handling miscellaneous freight at the Boston freight terminals, begun in late 1912, has been completed, and a paper covering the methods and results of the study has been prepared for presentation at a fall meeting of the New York Railroad Club. An extended study of the effect of the length of a passenger ride on street cars upon the net return on the investment in street railway properties is being conducted; it is expected that this study will require about five years, during which time the revenues, expenses, and traffic data of the street car systems in a number of the large cities will be analyzed. An analysis is being made of the delivery service of a large department store in New York City, with the object of presenting information upon the factors affecting the operation of the delivery service of such a department store; this investigation will be completed during the present summer. The experimental work now being carried on includes a study of the "skin effect" in solid and stranded conductors when carrying high frequency currents. In connection with this study, there have been developed methods of measuring at 5000 cycles per second a change in inductance of 10^{-8} henry or in resistance of 0.0002 ohm. The experimental work also includes an investigation which has for its object a more accurate analysis of sound waves than has yet

been made. Other studies which will be taken up include (1) an analysis of core losses at tooth frequencies in electrical machinery; (2) a study of forced and free vibrations of loaded and unloaded telephone diaphragms; and (3) a study of transient electric phenomena occurring in a 750-mile artificial power transmission line. Apparatus has been developed by one of the graduate students for measuring the alternating-current resistance of railroad rails at frequencies up to 60 cycles; measurements are to be made upon a number of tread and contact rails of different chemical compositions.

At the same time that this experimental work is going on, the Vail Library of 30,000 volumes is being catalogued. This fine library was recently presented to the Institute by Theodore N. Vail, president of the American Telephone and Telegraph Company. It contains a copy of practically every book relating to electricity or its applications which appeared prior to 1910. In completing the files of periodicals and in adding the books relating to electrical engineering which have appeared since 1910, it is the object to make the library a very useful instrument for the research work.

The special research work of the Electrical Engineering Department at the Institute of Technology is now firmly established with a permanent organization which insures the closest coöperation between the lecture, laboratory, and research branches of the department. An amount of over $20,000 is available for salaries, apparatus and other expenses in connection with the work of the research laboratory and library during the next year. The opportunities thus afforded for the department to assume a leading position in the development of new knowledge of electrical engineering and allied industries are both large and unusual.

H. F. Thomson.

Decorative Tech Seals

The Alumni Association has caused to be made a seal of the Institute, ten inches in diameter, for decorative purposes. The finish is an exact fac simile of carved wood, and it is unusually attractive. The price of these is $3.00, and a considerable number of them have already been sold. These seals are really the most attractive reproductions that have ever been made. They will be sent anywhere, postage prepaid, upon receipt of check for above amount.

WHEN WE WERE FRESHMEN

Reminiscences of serious or humorous experiences of alumni during their student days at the Institute

About February 15, 1865, there appeared in the *Herald* a small advertisement announcing that the School of the Institute would open February 20 at 16 Summer street in the Mercantile Library Building where three long narrow rooms had been rented.

Here assembled fifteen young men as the class of '68. They were a "picked-up lot" in that there was no preparatory school for such an institution of learning in those days and little or no examination as the writer recalls. The Faculty consisted of ten gentlemen with Rogers as professor of physics; a most remarkable man, who left his impress upon everyone with whom he came in contact, whether business men who furnished the sinews of war or students who revered him beyond words to express.

Rogers was genial, attractive, with a pleasant smile upon his strong face never to be forgotten, especially that prominent nose. A scientist of broad culture with such command of exceptional English that students were forced to obtain "Jenkins' Vest Pocket Lexicon," by the aid of which we were enabled to elaborate the professor's meanings. Of course we watched such a mind for some flaw which was never discovered except that he always spelled balance with two l's.

We put the work of the first year into four months under Rogers, Runkle, Storer, and Carlton.

Returning in the fall, the advent of '69 crowded the class of '68 over to an abandoned brick dwelling house on the west side of Chauncy street where were added to the Faculty, Professors Watson and Bocher, the former just returned from Paris with Ph.D. added to his name, a very courteous gentleman of polished manners, but slightly deficient in executive qualities to lead a body of active young men to fully appreciate his many excellencies. Professor Bocher taught us French, inviting us at times to his house where we recited and were received as guests of a gentleman of learning and character.

Notwithstanding other printed accounts of the Institute, the writer recalls that we did not enter Rogers Building for any work

before May of 1866 and then it was in an unfinished state. The writer remained with '68 until April or May of 1867 when he was called home to work in a line he had dropped in 1865.

When shall I stop this and to whom am I writing? To those who remember Runkle, Storer and Eliot, or to those who only recall them as shadows?

Runkle, the stalwart, master of his subject and his pupils, to be remembered as an ideal man. Storer, alert, sensitive, profound scholar, beloved by all, whose personality is sadly missed in these days of lengthening shadows.

Eliot, the tower of strength, who looked to all others to come up to his standard. Cold, unsympathetic, but he came to the writer when he was ordered home in 1867 and in a most delicate manner offered material aid if it would enable him to stay at the Institute to graduate.

Why all these reminiscences? To point out the differences between 1868 and 1914 and thereby impress upon our recent graduates what they have received as compared with what we received and to emphasize the debt they owe the Institute above and beyond their ability to repay unless by a life work of loyalty to their Alma Mater.

EBEN S. STEVENS, '68,
Of the Intervale Mills Company, Quinnebaug, Conn.

I would not say that the mists of oblivion had settled over and about the events of the freshman year of the class of '89, but certainly the haze of our Indian summer has softened many outlines. I was not quite seventeen when, in 1885, I entered the Institute, bearing blithely the burden of two "conditions," one of which I felt was manifestly unfair. It seems that some misguided maniac had built a railroad, and in order to complicate his calculations, and pester his chief engineer, he required the total length of rail to be computed, a job that the engineering force was unable to cope with, so that we undeveloped children had to be called in. I followed the workings of his diseased mentality to the bitter end, but forgot to multiply by two, and our stern examiners, believing that I thought it was a mono-rail affair, gave me the double cross. This memory has not been obscured in the weakened intellect of old age, but remains clearcut, distinct.

All this, of course, is personal rather than of the class, but under the circumstances of the gathering of a new class in those days, I think that our first experiences were decidedly of a personal nature. The only fellows we really knew were a small group from the school whose diploma we had proudly permitted father to frame as a spur to our younger brothers. A few fellows from other schools we knew slightly, as Sioux Indians might acknowledge the presence of a Cherokee. But these new-come others, Omaha, Dubuque, Little Rock, Kansas City, Marquette, San Rafael, San Francisco!

We Bostonians of thirty years ago (almost), and especially we of comparatively tender years, had seldom been west of New York or Albany; or possibly Philadelphia, or Buffalo might mark an extremely daring spirit, or an indulgent parent. Now we were to meet adventurous pioneers, who, in bold contrast to ourselves, were leaving happy firesides to install themselves in the hall bedrooms of Columbus avenue, at that time poor, but comparatively honest. This is perhaps the native freshman's first awakening; he has always known that he was to go to the Institute, and has expected a gentle continuation of his high school career, while enjoying all the comforts of home, and now he meets fellows who are far from their own homes, but who are confidently striking out for themselves, unaided except for the remittance, sometimes, as we know, pitifully scant, although the best that home can send. And the realization of purpose in these new fellows brought many of us to see that we had left boyhood behind. And others, who lived at what we would call a prohibitive distance from Boston, took a train in the gray dawn, worked all day at the Institute, and went home by an evening train. These men, we of the lighter disposition came to know only after some time had passed.

It took some time for the class to know itself, or each other. We held our freshman class meeting in Rogers' 15, the air full of rumors of a warlike descent of the '88 Assyrians. The descent came, but the "dog-wrastling" had hardly commenced when President Walker came from his office (nearby—as you may remember) and peace ensued, and '89 elected her officers. In November, we took the first steps to form the Society of '89, and the honor of membership later gave us the privilege of pinning to our waistcoats one of the most entirely ugly jewelled pins that any student ever wore. I think that the class societies, which only lived through the four years, served an excellent purpose in bringing us together, as their

festivities were frequent as compared with those of the class, less formal, and the men who got to know each other in the society worked together for the good of the class.

Of the privileges of other societies, we, as freshmen, shared but in modest proportion. One or two of us were taken by the fraternities; at that time only three had chapters with us; and a few "made" some of the technical or the merely social organizations. In our day (I speak as one well along on a far pilgrimage), the freshman was a good deal of a "dam freshman," and he was supposed to be working hard and making good generally, to the end that finally, if he were good, he might be admitted to the society of his elders and betters. These he might meet on the athletic field, and did so to some extent, but our freshmen days were full enough of trouble to keep all but a few pretty well tied down.

We had ten men in the M. I. T. orchestra of '85–'86, a statement incredible but for its appearance in '87's *Technique;* and we were the first freshman class to furnish the battalion with a commanding officer, also we gave it a bass drum, which was brought out and allowed to speak of our glories at Nantasket, five years ago.

A somewhat hazy middle distance makes the separation of freshman and sophomore years a trifle indistinct. I do know, however, and know absolutely, that Harry Tyler accomplished a miracle in freshman algebra, in that for a short while, and under some sort of a spell he cast upon me, I actually understood algebra for the time being. But, alas, he failed pitifully later on, and now I can't even remember the name of the branch of study that expresses an ellipse in fractional terms of a and b and (if I remember rightly) something equals 1. It somehow seems cruel to say this, but after intimate acquaintance with my own mental processes for (let us say) quite a few years, I cannot but regard his achievement in freshman algebra as sufficient crown for a life work.

To Professor Otis I owe a remark that might have changed the current of my life by enabling me to appreciate German literature. I was painfully translating the doings of a female named Elsbet, who seemed to be unfortunately mixed up with an aged and bleeding ruffian in a forest, who bore the curious name of Poppel. I was obliged to guess at many of the words, till Professor Otis remarked, "Have you a dictionary?" I replied, hesitatingly, "No, sir." "I advise you to procure one," said the professor. I often wish I had done so.

Of Professor Cross, some of us were good and scared, especially the poor architects, who in those days occupied a place of small esteem. When "Charley" would say, at the close of his hour, "Are there any questions?" we had so many, but nary an answer, that we held our peace fearing lest we be discovered.

I think we all liked "Billy At." in English, and Luquiens in French; the higher engineering and applied mechanics branches did not enter my course, so that I escaped the portion of scorn that might otherwise have been mine; you may remember that you used to call architecture a "snap" course.

The old draughting room at the top of Rogers' has many pleasant memories about it, and the difficulties of Faunce's new book on descriptive geometry and some of Burrison's problems have faded in the recollection that I passed a cone through a cylinder, "both of 'em skewgee'd round," found the intersection, and cast the shadows!

If it hadn't been for Wheelock, I should not have noticed that Robinson Crusoe said, "We should be inevitably drowned!" and I felt that Dr. Dewey liked me, though he could not admire.

It is hardly within the scope of a paper like this to speak of those who led us, and who died. Their work speaks for them, but it is good that our memory of them is mingled of respect and of affection.

Few of us knew Francis A. Walker well, but those who met him found that the President was a man—a man of such strength and courtesy and sympathy that our troubles were made simple, our strength renewed. An interview with the President, perhaps looked forward to with some nervousness by us, terminated in added courage to meet our work. He understood.

Professor Runkle—never was there a kindlier exponent of a somewhat difficult subject. I know that it was in kindness that he "passed" some of us, just as in all kindly patience he endeavored to make us see that really "the thing is done!" We tried to understand; some of us succeeded; but we all of us understood and loved "Uncle John."

But I gather from Mr. Litchfield (who was just far enough ahead of me to make me afraid to call him "Ike") that these reminiscent prattlings are to cover only the freshman year. And it seems as if that year produced no great doings to prattle about. I think, as a class, we studied fairly hard; we disported a little, but our ranks

were closed up bravely when we reported for duty in the autumn of 1886.

GEORGE C. WALES, '89,
Architect, Boston.

We were freshmen in 1875, the first of the centennial celebration years.

Of our entrance examinations, the only recollection I have is that the last one (in mathematics of some kind) came on a Saturday morning and I had a date to play ball in the afternoon; and when the time came for me to take my train, at 12.30, I had to take a choice between the ball game and the last question. As I was quite sure of the first nine and part of the tenth, I took a chance and left for the ball game, and my wisdom of choice was later justified, for we won the ball game and I got 98 per cent in the examination.

Of course in October, on the opening day, we all gathered on Rogers' steps or in the hall, and looked our part, we probably not exceeding fifty in number. We were led into old Room 4, on the right at the foot of the stairs, which room was at that time the general lecture room for whole classes, or even two classes; and the roll was called. When my name was called, I answered "Here," and was surprised to hear another voice also answering, and I found a new cousin; and we were known for some years as "T. B." or "J. W."

The class of '78 was a lucky one as well as a good one, for up to our year military drill was required for two years, two days a week. We did our two days for one year, and then the plan was changed, so that the freshmen only had drill, for three days a week. We had another godsend in our second year, as Professor Cross was sick for half the year, and we had no physics.

'78 was the first class, as far as my knowledge goes, to be officially received into the Alumni Association; and this reception took the shape of a "strawberry festival" at Young's Hotel, and was a modest affair in comparison with the Pops of today.

My personal interest during our entire course was in quite a measure devoted to the physical development of the Institute, particularly in baseball. In the fall of 1874 and the spring of 1875 there was no building except "Rogers," and we used to play ball in the west half of our own lot, where Walker now is; but after we had

made a few home runs from hits through Charley Cross' screened windows in the physics lecture room, and landed others on the window sills of the parlor windows in the Brunswick, we were advised to make our experiments elsewhere, and had to go out into the sand lots of Back Bay.

The Institute ball nine was "a thing of beauty, but no joy forever." Its beauty was in the uniform of gray and lavender; and the breeches were like riding clothes, buttoned tight around the calf of the leg from the knee to the shoes. I do not remember of ever seeing more than five or six uniforms for the whole nine, so we had to divide them up, and the combination was a "beaut."

I remember how much I felt honored when they first asked me to play on the Institute nine, for I was young and looked up with awe to several of the fourth-year men, until I saw them play a game; and then most of them took a tumble in my estimation as ball players.

We had a very energetic military instructor, Captain Zalinski; and, to promote our knowledge of military affairs, he ordered a court-martial of a '78 man for "cutting drill," or some equally heinous offense. It wasn't any joke, and was held in Room 4 before a congregation of all the Institute classes. Things went along smoothly until a lapse in the proceedings came, while the judge advocate or some other official took a rest or a drink. At this moment the President of the Institute, Dr. Runkle, arose and began to talk of the seriousness of the whole matter, and he scared us poor freshmen badly, as we thought surely the accused was in for a vacation, and possibly a visit to Charles street jail. The "accused," however, was not of that kind, and thought if there was to be a court-martial, and he being the "goat," would have one according to law; so he promptly got the ear of the judge advocate, who arose and said: "The accused objects to the President making any remarks in this court-martial which might be prejudicial to him." Whereupon, Mr. President, seeing the force of the argument, sat down, amid applause from the assembly. I believe the accused escaped serious punishment.

The end of our freshman year brought us into the centennial celebrations of 1875, at Concord and Lexington, also Bunker Hill; and many of us, having had further advanced training in military tactics in a camp at Lexington in the early part of the vacation of 1875, were drafted into the Lexington minute men, and marched

with them in the big parade on June 17 in Boston. My recollection of that day is of standing around on the Back Bay streets for hours, waiting to start; and of being paralyzed by thirst, and later in the day by hunger. But we survived as did some of the good men whose fame we were trying to perpetuate.

Our first annual examinations, as I remember, did not badly decimate our ranks, so that we all came back in the fall of 1875 with good courage and unbounded faith for the future.

Sometime in the late fall of 1874 or early in 1875 a gymnasium was built in the vacant part of our lot in our old ball field. It was a structure of good size and answered as a drill hall and a dining hall, as well as a gym.

The entire Institute registration was only 250, more or less, so the professors had a good chance to get in personal touch with the students in the lecture rooms, but to my recollection the boys didn't seek them outside of recitations. We used to nickname them if we could, and "Billy Rip," "Windy Warren," "Charley Cross," and "Bob Richards," were our favorites.

In the freshman chemical laboratory, some of the boys used to do stunts, and once in a while blow things up; and, in qualitative analysis, used to taste the samples given them to analyze to find out whether the samples were chloride of sodium or cyanide of potassium, without going through all the forms and work.

We were in a way at times quite festive. We slid down the banisters until they put knobs in them; dropped paper bags filled with water onto Rogers' steps from the fourth story windows, until one day we caught the President in the shower. We had a rifle gallery, with a target of drawing boards, and practised military arts, until one day some greenhorn missed a 4 by 6 target entirely, and the bullet went through the partition walls into the library, and woke up suddenly the attendant there, an estimable young lady, who, being scared, duly reported the fact to the authorities, with the result that rifle practice was transferred to the Watertown Arsenal.

The only organized movement which took in the whole Institute, that I can remember, was the organization of an Institute battalion for torch-light parade in Boston in the presidential election of 1875. Our uniform was a piece of cotton cloth with a hole in it, and a red turban. We were assigned our place in line on the Common, and, just as we were starting, a large company of butchers

in their professional regalia of white frocks, very similar in appearance to our rig, jumped into our position. That started a scrap right off, and our military training came to us in good stead—we marched our men right through their files and got our place. Later in the line of march the same bunch again tried to get our place, but it didn't work, and we stuck it out to the end. A poem was dedicated to this event, thusly:

"Butcher, Butcher is my name,
I am a butcher till I die;
When I go marching on the street,
I'll shun Technology!"

In the summer of 1876 most of us went to the Centennial Exhibition in Philadelphia, camping in tents on the grounds of the University of Pennsylvania. We had a glorious time, seeing the show and city, and were entertained very generously by the college people.

We had a large room in the basement of the medical building for our dining-room, but unfortunately it was just next to the dissecting room, where the "cadavers" were kept in storage for the autopsies of the medical students, and if the wind was right our appetites suffered, after we found out who or what our neighbors were.

We had to do guard duty, and the strict discipline of the Institute nearly caused a tragedy. One night, two or three Penn men came to visit our camp, but were held up by the sentry on guard at one of the gates. He wanted the countersign, and they thought it a joke and tried to pass him. But the guard, a little freshman, said, "One of you fellows may get by, but the other will get a bayonet through him, so you had better quit!" And they did.

We studied logic with Professor Harrison, or rather listened to his lectures, and to the sorrow of some of us with not enough attention to pass the examinations. I cannot remember now what logic was about, and the only recollection I have of the course was the definition of an interjection, which was, according to our learned professor, as follows: "An interjection is a sub inter-lectual or extra-logical word, which names but does not embody, some feeling strong enough to blot out for the time being its recognition by self-consciousness."

This definition was the sole relic of our course in logic, and when the exams came, we all agreed to get this definition in somewhere

in our answers, regardless of the question. So we all got credit for remembering one thing of the many taught us.

The Institute life of those days was almost nothing. There was not a single society, or even class societies, apart from the general class organizations; and the only competitions we ever had were between rifle teams of the different classes.

There were no organized athletic clubs, for the ball team was no more than a "picked nine," and not until 1877 or 1878 did we have any social times, and then only after the annual exhibition drill in the gym, we got up to the great dissipation of an afternoon dance.

Sometimes a present student or recent grad of the Institute asks the question, "Did you have to study as hard in your day as we do now?" My opinion is that we had more work to do in the early days; we certainly had no legitimate play or relaxation at Tech, and had to go elsewhere for it. In civil engineering, for example, we had to pass an examination to get our degree, which covered all the work we had done in our junior and senior years. This nearly created a strike. For, of course, we all had to "cram," and we could not "cram" two years work at one time, and do it well; so we made a division in our mind of the extent of the first examination, and "crammed" accordingly; and we all got a severe chill when we saw that three questions of ten went over our limit.

The Institute spirit in 1875 was practically unknown; though I do remember in 1876 of leading a forlorn Tech cheer for the Penn boys when we were leaving them. But *work* in those days at Tech was the regular and expected thing, and those of us who survived were grateful; and also are now happy to see the changes which have come to Technology and the great place which it holds in the world's work.

J. W. Rollins, '78,
President Holbrook, Cabot & Rollins Corporation, Boston.

Annual Outing of the New York Club

The entertainment bulletin of the New York Club, just published, announces that on July 17, the members will celebrate their annual meeting at the Marine and Field Club, Bath Beach. In the afternoon the guests will play tennis, golf and go in swimming. Supper will be served in the main club house at 7 p.m.

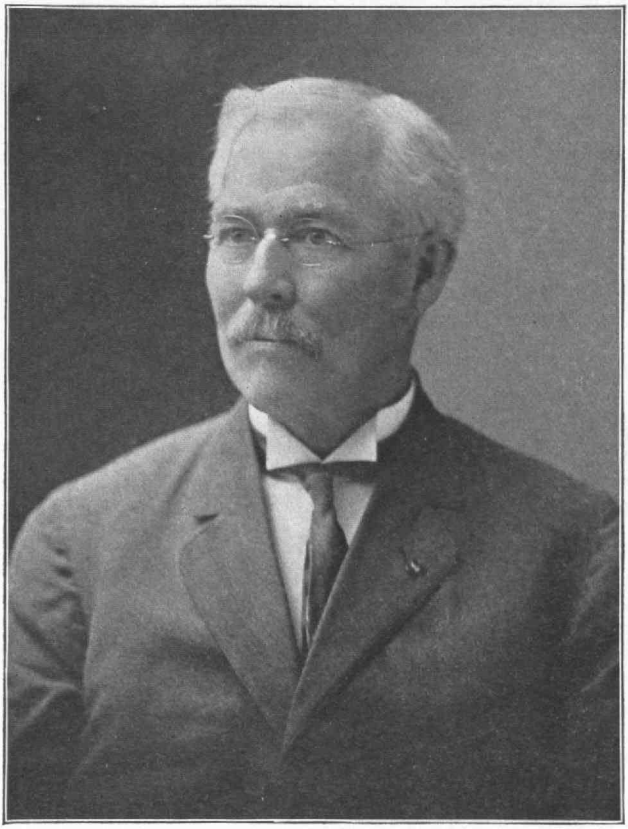
PROFESSOR BURRISON RETIRES

It will be a distinct shock to the alumni of Technology to learn that Professor Burrison is retiring under the benefits offered by the Carnegie Foundation. "Burrie," as he was familiarly called, has always had a place in the hearts of those who came under him, and during the 80's practically every man who took first-year drawing was indebted to him for special assistance, which he was always glad to give. He is held by the alumni as one of the most popular and most esteemed of the instructing force, and during his service at the Institute he has met and become intimate with an immense number of students. In the well-earned leisure which will now be his to enjoy, he will have the good wishes of all these former students,

Henry Kingsbury Burrison was graduated from the Institute of Technology in 1875. The effect of the panic of '74 was still being felt in the country, and as opportunity for business was not offered, he continued work at the Normal Art School, and for a short time afterwards was bookkeeper with Farley, Amsden and Company. In 1877 he was asked to come to Technology to take charge of the first-year drawing, and he has been "on the job" ever since with advancements in grade. In the beginning he had, in the freshman class, one hundred and fifty men with only one assistant. He organized the work of the department, and was its practical head. In addition, for some years Professor Burrison was engaged in work with the Evening Drawing School.

In his position as teacher of first-year drawing, Professor Burrison met practically all the students in their first, and it is said their most difficult year, but such was his control of the situation that under him there has never been any breach of discipline. He treated the young students not as unruly boys but as gentlemen, he had a personal interest in them, and through this relationship he has had enormous influence in shaping their future courses. His acquaintance was exceedingly wide and his influence has been a powerful factor for the good of the student body.

In private life Professor Burrison has a reputation as a collector in natural history, his specialties being butterflies (10,000 species) and the fresh-water bivalves of the rivers and ponds of the country. His home is in West Newton.



HENRY K. BURRISON, '75

A RECORD GRADUATING CLASS

At the commencement exercises of the Institute, which took place in Huntington Hall, June 9, three hundred and thirteen students received degrees. There were two hundred and eighty-six bachelors of science, and twenty-seven advanced degrees. Of these two were for doctors of philosophy, one doctor of engineering, and twenty-four masters of science. This is a record mark for Technology, topping last year's figures by eighteen.

The students are well distributed over the United States and, in fact, the world; one from South Africa, one from western Asia, and six from Central or South America, besides eighteen from China. In all, there are twenty-eight from outside the United States. Of the graduates, seven are from the Pacific coast, twelve from the Far West and ten from the western Mississippi Valley. The south is represented by sixteen, the nearer West by twenty-four, the Middle States by thirty, with ten more in New York City. The others are from New England.

One woman, Marion Rice, of New York, was in the group, receiving the hearty cheers of her fellow students as she was handed her diploma. Miss Rice has taken the full course in chemical engineering.

The customary set address by the President of the Institute was omitted this time, establishing a precedent. Owing to the rapid growth of the graduating class and the danger of lengthening the exercises too much, Dr. Maclaurin decided to make this change. For sentimental reasons the students all desired to receive their sheepskins from the hand of the President, so this custom was maintained. "Since it is obviously necessary," said Dr. Maclaurin, referring to this situation, "and the feeling is in favor of personal presentation, it has seemed to me best to drop what is but a repetition from year to year, the speech of the President."

Theses were read by ten students from different courses, each showing much scientific investigation work and, in some instances, the development of new information or theories of value.

A Textile Research Laboratory

In his annual report to the National Association of Cotton Manufacturers, the secretary, Mr. C. J. H. Woodbury, '73, states, on

the authority of President Maclaurin, that the Institute of Technology is willing to coöperate with the association to assist in the establishment of a laboratory which, under skilled supervision, will be available for the examination of fibers, goods and supplies used in textile manufacture. Mr. Woodbury speaks of the great use such a laboratory would be to the cotton industry, instancing the benefits derived from similar laboratories in Europe, and suggesting to textile manufacturers that they take steps to coöperate with the Institute in this matter. It is estimated that the cost of maintenance, under the conditions that would prevail, would be small, and it is hoped that some positive step toward its foundation may soon be taken.

New Members of the Alumni Association

The following former students were elected members of the Alumni Association on the dates indicated:

January 19, 1914, Lionel Bonvouloir, '13; DeVere Dierks, '14; George A. Draper, '76; Henry D. Floyd, '86, S.M.A.; Miss Susan Minns, '81; George L. Uman, '12.

February 16, 1914, Frank C. Goddard, '86, S.M.A.; Angus R. Hammond, '12; John E. Howland, '83, S.M.A.; Leo Samuel Hubbard, '13.

March 23, 1914, Sheldon Perry Thacher, '07; Lionel Henry Lehmaier, '13; Frank Stedman Wilson, '86.

April 27, 1914, Joseph Oppenheim, '13; Oswald C. Hering, '97.

Tech Sends Delegates to Chile

Six American colleges, representing different parts of the country, will send delegates to the Fourth Pan-American congress of students, which will be held in Santiago, Chile, September 6. The Institute of Technology will be represented by A. P. Gutierrez, '15, and L. W. Snow, '14.

The object of the congress is to cement closer the unity of ideals and the community of interests of the new generation of the Americas.

DETROIT CONTINGENT AT THE DETROIT–CLEVELAND OUTING AT PUT-IN-BAY

INDIANA ASSOCIATION OUTING, FAIRVIEW PARK, INDIANAPOLIS

LOCAL ALUMNI ASSOCIATIONS

Big field day of Detroit and Cleveland Associations at Put-in-Bay—Northern California organizations being strengthened—Dinner to W. C. Edes, '75, at Puget Sound—Good outlook for Northwestern Association—Dr. Pritchett addresses Indiana Club.

DETROIT TECHNOLOGY ASSOCIATION.—April 22, with O. W. Albee and V. D. Williamson as committee, the Detroit alumni held a spring meeting in the nature of an informal dinner. Thirty-five men were present. Each one was asked in turn to get up and give his history since graduation or time of leaving Tech, which brought forth some interesting facts and comments.

An hour or so of very clever sleight of hand, by Mr. Adams, a friend of Albee's, concluded one of the best gatherings we have had.

On June 20, Detroit joins with Cleveland and Akron Alumni in a "Field Day" at Put-In-Bay Island.

Unfortunately we will only have four hours together, but even so, it will afford time enough to pull off a baseball game with a soft-ball for the championship, and enjoy a basket picnic.—

Saturday, June 20, marks another successful outing of the Detroit alumni of old M. I. T., in conjunction with the Cleveland and Akron alumni bodies.

Headed by the Boy Bugle Band of seventeen pieces, we marched to the wharf, where we were met by several of the wives.

Just before our boat, the *S. S. Put-in-Bay* pulled out, a big M. I. T. pennant was hoisted to the forepeak midst Tech yells and music. The Tech party occupied the entire upper fore deck and had plenty of opportunity during the delightful sail down the beautiful Detroit River to get thoroughly acquainted. A very hearty luncheon was served on board by the ladies, and our appreciation of it was shown by the fact that nothing but empty boxes remained.

The boat being late, gave the Cleveland crowd a chance to act as reception committee and extend a hearty welcome to Put-in-Bay.

The mayor of the town, a friend of our chairman, H. E. Allen, '08, handed over the keys of the place, and then, headed by the band all marched to the grove where we proceeded to get acquainted, while the two baseball captains made arrangements for the game.

Detroit, captained by our celebrated pitcher, Currier Lang, and assisted by our various Cobb's (Crawford's) and Bush's proceeded to show its wonderful "pep" to the Cleveland nine, headed by C. R. Haynes with his Jackson's, Lajoie's and that terrible Terry Turner (?) that held down the third base.

Charles L. Weil of Detroit was permitted to umpire the game, and despite his attempts to throw the game, the singles, doubles, triples and home runs, not forgetting the encouragement and cheers of our Detroit lady fans, were too much to overcome, and Detroit alumni were declared winners by the score of 7 to 3.

Following the game, group pictures were taken. Then with Detroit acting as escort, we all marched to the dock to say goodby to the Cleveland-Akron alumni; a fine crowd of fellows were wished a hearty "bon voyage" with the one regret that the visit together had proven to be too short.

The rest of our stay was spent in doing the sights; only the "All aboard" cry stopped our fun, and a happy crowd boarded the boat for a quiet trip back to Detroit. During the return trip a luncheon of sandwiches, doughnuts and coffee, etc., was served by the committee who deserved credit for a most pleasant day. The committee was composed of H. E. Allen, '08, chairman, Frank Davis, '05, and Currier Lang, '04, and we all extend our hearty congratulations to them; they have set the pace.

Last but not least, a word to say how delighted we were to have the ladies with us and to assure them that the day without them would have been just cause for deep regrets.

The following Detroit members made the trip:

Mr. and Mrs. Orton W. Albee and daughter; Mr. and Mrs. H. E. Allen; G. L. Bixby, E. B. Cooper, M. S. Dennett, C. W. Dow, R. F. Floyd, H. Currier, R. F. Hill, Mr. and Mrs. Currier Lang, Mr. and Mrs. G. V. Pottle, P. M. Smith, Mr. and Mrs. E. B. Snow, K. D. Stellwagen and Miss Sims, Chas. W. Weil, W. A. Wood, D. V. Williamson, Edgar Menderson, H. D. Swift.—*Preston M. Smith, '05, Secretary, care Carl E. Schmidt & Company, 54 Macomb Street, Detroit, Mich.*

TECHNOLOGY ASSOCIATION OF NORTHERN CALIFORNIA—The annual banquet of the association was held at the University Club on Saturday evening, May 16. Twenty-four men, representing classes from '83–'12, assembled for the occasion. Once the repast started, each guest introduced his left hand neighbor to the assembly and soon a spirit, such as prevails around a comfortable camp fire, reigned at the table.

Allan Hazen, '87, Leonard Metcalf, '92, W. T. Barnes, '93, and Charles Alden, '90, were guests in San Francisco and joined our happy gathering. Mr. Metcalf enlivened the evening with an interesting discussion of Technology affairs. The announcement of the election of Ernest A. Hersam, '91, as president and Herbert D. McKibben, '06, as secretary-treasurer for the ensuing year was made, and the president delivered a stirring address in which he outlined his policies. Interesting life experiences of men gathered about the table became common talk of the evening and everyone left with the feeling that the dinner was the most interesting ever held by the association in San Francisco.

During the past year the policy of the association has been centered in a publicity campaign, in which an attempt was made to circulate news of the doings of Tech men of this vicinity. It was hoped to create a new interest and foster a more kindred spirit among the members, as well as to advance the general welfare of the association as a whole. The movement gave evidence of success and our president declared his intention to carry the policy just as far as conditions and resources permit.

The Panama Pacific International Exposition, with its many engineering congresses, will see many Tech men in San Francisco in 1915. The association is considering details for the proper and ample reception for Tech men visiting the World's Exposition, and hopes to present them soon in the REVIEW.—*Eugene Kriegsman, '05, 444 Market Street, San Francisco, Cal.*

TECHNOLOGY CLUB OF PUGET SOUND.—The activities of the Technology Club of Puget Sound have been confined during the past season to monthly luncheons held in Seattle. The attendance has not been large but the faithful have always been ready and willing to assist in keeping the up-standing of the club.

We were very much disappointed in the change in Doctor Maclaurin's plans but are looking forward to a visit from him at some

not very distant date. We have been very much interested in the appointment of Mr. William C. Edes, '75, on the Alaska Railroad Service Board and if he ever comes to Seattle, Mr. Frank Dabney, one of our members, who is also a '75 man, promises to get him for a Tech meeting.

The noonday luncheons have been temporarily discontinued until September.

The election of officers for next year has resulted in the following:—Quincy P. Emery, '07, president; Walter A. Gleason, '97, vice-president; and Joseph Daniels, '05, secretary-treasurer.

Mr. W. C. Edes, '75, chairman of the Alaska Railroad Commission, who is now in Seattle organizing the work of the commission, was the guest of the Technology Club of Puget Sound at an informal luncheon at the College Club on Tuesday, June 2. Mr. Edes was accompanied by Mr. Bacon, a University of Illinois graduate, who is to have charge of one of the parties. The meeting was well attended on account of the great interest shown by this Northwest country in the development of Alaska. We all believe that with the transportation facilities well worked out, Alaska will develop very rapidly, a matter which is of great interest, particularly to Seattle men and to all engineers. Mr. Edes gave a very informal talk on the general situation and said that he did not know very much about Alaska just now, but he hoped that on his return he might have more to tell the Technology club. He also "reminisced," together with Mr. Frank Dabney, '75, on the Tech of his time.—*Joseph Daniels, '05, Secretary, Box 115, University Station, Seattle, Washington.*

Northwestern Association of the M. I. T.—Theodore W. Robinson, '84, was taken ill with appendicitis shortly after the reunion, but has since assumed his regular duties. The only other alumnus whom the reunion seemed to have a bad effect on, as far as we have heard, was our old friend William T. Leman, '73, who fell on the Blackstone steps as he was departing from the celebration, and broke a rib. One reason why no excitement was caused by this lamentable accident was that Brother Leman did not appreciate the extent of his injury until the next day. He has since turned up at some of our Thursday luncheons, and is apparently in fine shape for another reunion.

We are now planning a summer outing which will be held about the latter part of July, probably at the Midlothian Golf Club, through the kindness of Fred W. Clark, '80. Mr. Clark, who rendered valuable assistance on the committee preparatory to the reunion, appeared to lose his nerve just before the event was pulled off, as he departed for Egypt and was lost sight of for several months. His cablegram from some dubious place in Greece will be remembered by all who attended the banquet at the reunion. Our genial traveler has recently returned, however, appearing frequently at the Thursday luncheons from which he rushes at an early hour in order to play golf all the afternoon, and, in other ways, carry out his duty to his country.

The reunion, in addition to being a good thing for the middle west crowd generally, has benefited the Northwestern Association immensely in stirring up interest as evidenced in many ways, particularly by an increased attendance at the Thursday luncheons. The treasurer has even been approached by several parties who freely, without solicitation, offered to pay annual dues; and all this, within a few months of the reunion, during which time the pleadings for financial assistance, payment of back dues, etc., were pitiful to hear.

We are all looking forward now to the big celebration in Boston, June, 1915, and hope to turn out a record-breaking delegation.—*George B. Jones, '05, Secretary-Treasurer, 1444 Monadnock Bldg., Chicago, Ill.*

Indiana Association M. I. T.—The principal activities of the association have been our gathering once a month at luncheon. The attendance has kept up well, and the last meetings have been followed by trips through various plants: Messrs. Wayne, '96 and Stickney, '96, being the hosts in an interesting inspection of the C. U. Telephone Company, and W. G. Wall, '96, last month inviting us to see the National Motor Vehicle Company factory.

On June 13 we will have our first annual meeting and outing, at Fairview Park, Indianapolis.

This will be more of the nature of a frolic, and a ball game, balloon ascension, chicken dinner, and some stunts will occupy the afternoon and evening.

This will conclude our assembling until fall. The intention, however, is to keep up the inspection trips after the noon

lunches, and as many of our members are identified with large manufacturing concerns, these trips will be profitable as well as interesting.

The association held its first annual outing at Indianapolis, Saturday, June 13, 1914, at Fairview Park. This is one of the events which includes the wives and families of members and therefore we had the pleasure of the attendance of a number of the ladies and children. The original plan of sports was interfered with because of the activity of Jupiter Pluvius, but this proved really a blessing in disguise when final results are considered. The only athletic event sandwiched in between showers was a very exciting game of "Niggerbaby" which not only gave the men much needed exercise but also proved the source of considerable amusement to not only our own party but also to all others who were within earshot of the accompanying racket.

A chicken dinner was served in the Park Pavilion to which everyone did full justice. During the dinner, much amusement was had with balloon balls, all of which finally met destruction. Following a few words of appreciation of President Maclaurin, very attractive Tam-o-shanters and Scotch caps in college colors were distributed. Adorned in these, a rousing Tech cheer was given, followed by three for Maclaurin. There were few sad notes at the dinner and these arose from the Pavilion Orchestra, which produced so many sour ones that one of the guests had to retire with indigestion.

Following the dinner, the real novelty of the season was pulled off. Encamped in the park was a party of Seneca Indians soon to open an engagement in the production of *Hiawatha*. Proper persuasion on the part of Secretary Parker, exercised both upon the said Indians and upon their manager, led to an arrangement for a vaudeville performance, true Indian style. There is a platform on either side of the stream through the park where the Seneca Indians took their position on one side and the M. I. T. Indians on the other. Awaiting the arrangement of the spot light, with the usual Tech exuberance, our party burst into song, followed, much to our surprise, by applause from the shadowy forms on the other side of the stream who responded with a song of their own. This process was repeated again and again, the crossfire being kept up for half an hour or more, being interrupted however, now and again, by the release of a balloon carrying a Tech

banner. Following the arrival of the spot light, the Indians engaged in all sorts of dances, both concert and solo, most characteristic and interesting, closing with a farewell song and the disappearance of men, women and children in Indian file off into the darkness. The manager of the Indians informed us that these latter had had more fun than had we and that as for himself, after being out with this troop nine years, it was the first time that he had found anybody who could keep a note of sadness out of their performance. The outing was declared by all a distinct success and local Technology went home tired but happy, especially appreciative of their very novel experience.

Dr. Henry S. Pritchett, of New York, president of the Carnegie Foundation for the Advancement of Teaching, who was in Indianapolis to deliver the principal address, June 15, of the dedication of the Robert W. Long hospital, addressed the members of the association at a luncheon at the University Club.—*Wilson B. Parker*, '88, *Secretary, 805 Board of Trade Bldg., Indianapolis, Ind.*

Technology Club of Hartford.—The annual meeting and eighth annual dinner of the Technology Club of Hartford was held April 18. The following board of governors was elected: President, J. H. Fellows, '07, New Britain; vice-president, H. E. Dart, '01, secretary-treasurer, George W. Baker, '92; members at large, Atwood C. Page, '10, and Charles P. Waterman, '03. Hiram P. Maxim, '86, S. M. A., was the guest of honor.

After the banquet had been served, Mr. Maxim gave a talk on the history of wireless up to the present time.

The men then adjourned to the library on the third floor, where Mr. Maxim gave a practical demonstration of the method of receiving wireless messages. Dispatches were received from Sayville, Long Island, Arlington, Va., and Key West, Fla. Among the messages received were the stock quotations of the New York Stock Exchange and a bulletin from Washington on the Mexican situation.—*George W. Baker*, '92, *Secretary, Box 983, Hartford, Conn.*

Washington Society of the M. I. T.—During the past season the society has held three meetings. The annual meeting was held at the University Club on January 14, 1914. Dinner was served to thirteen members in a private dining room. As no one

left the table it may be inferred that superstition had no place at the dinner. Three additional members arrived for the business meeting.

The following officers were elected for the ensuing year: President P. V. Dodge, '07; vice-president, W. H. Bixby, '70; secretary, W. J. Gill, Jr., '04; treasurer, F. C. Starr, '05; executive committee member, F. W. Swanton, '90; alumni representative, H. A. Morss, '93, of Boston.

After a discussion of plans for subsequent meetings a series of lantern slides showing the plans of the new buildings of the Institute as well as other views of interest to Tech men were shown.

On the evening of February 12 about twenty loyal Tech men and a brother of one of them braved the near-zero temperature and gathered at the Analostan Boat Club house by the Potomac for a smoker. Even aided by a strong imagination, one failed to feel any warmth from the two gas heaters which struggled manfully against the inrush of cold air through the cracks of the building.

Even the beer is reported to have been frozen in the spigot of the keg and everyone kept inside his overcoat and under his hat. Evidently inspired by the nearness of the river, someone had the temerity to suggest a trip in the motor boats of certain members of the society, but fortunately for his own safety he offered it as a suggestion to be given consideration some months hence. Up to the present writing the suggestion has not been acted upon, evidently for fear that the river would freeze over if the Tech society planned to get near it again.

On the evening of March 11, six members of the society, accompanied by the ladies, attended the performance at Keiths'. The secretary can account for this small number only through his oversight in not announcing on the post card notices the fact that Gertrude Hoffmann and company were to be the headliners of the show.—*Walter J. Gill, Jr.* '04, *Secretary, 1306 Rhode Island Avenue N. W., Washington, D. C.*

Technology Club of Northern Ohio.—Among the new members who have associated with the Technology Club of Northern Ohio this year are the following:

A. M. Eicher, A. C. Downs, W. N. Brown, F. E. Dixon, R. A. Staples, Henry Souther, C. M. Sears. W, S. Wolfe, Henry Wagner, M. S. Wilcox, L. E. Wright, R. S. Whiting, P. M. Wiswall, Charles

Field, P. J. Franklin, E. Hurst, Glyde Katzenstein, C. P. Kerr, F. B. Meade, C. P. Monto, H. D. Mitchell, M. P. Potter, P. E. Robinson.

Since the annual banquet at the University Club, which was completely described in a previous issue of the REVIEW, the organization has held no meetings. Plans, however, are in progress to arrange for weekly luncheons similar to those which are held in other cities where alumni organizations have centered, and the next big event is the joint meeting with the Detroit Association at Put-In-Bay.—*D. R. Stevens*, '11, *Secretary, Peerless Motor Car Company, Cleveland, Ohio.*

Senior Picnic

The graduating class of the Institute has set a new precedent in the form of a picnic, which was held at Tuck's Point, West Manchester, June 6.

Two years ago the class of '87 started the innovation of inviting the seniors to spend an afternoon at Bass Rocks on the occasion of their twenty-fifth anniversary. When the class of '88 went to Wianno, it was rather more difficult to entertain the class, but it was finally accomplished, the greater part of the class going to Wianno by train and being entertained by the class of '88. It became evident, however, when the class of '89 selected the Hartford Yacht Club at Saybrook, Conn., as its rendezvous that this plan could not be carried out, and although it is a very pretty custom, it is practically impossible for the twenty-five year classes that celebrate their anniversary at a distance from Boston to entertain the graduating class. Accordingly the class financed this picnic itself, taking a steamer from Boston to Tuck's Point, and having athletic games and a big dinner upon arrival there. It was one of the most pleasant features of the entire commencement season.

TECH MEN IN THE PUBLIC EYE

W. G. BESLER, '88, formerly vice-president and general manager of the Central Railroad of New Jersey, was recently elected president of that railroad, following the death of the former president, George F. Baer.

Upon leaving the Institute, Mr. Besler became a trainmaster's clerk in the service of the Chicago, Burlington and Quincy Railroad in 1884. From 1888 to 1899 he was employed by the Philadelphia and Reading Railway as division superintendent with headquarters in Philadelphia. In 1900 he became general superintendent of the road, and in 1903 was made general manager of the Central Railroad of New Jersey, which had passed to the control of the Reading in 1901. A year later he became vice-president and general manager.

C.-E. A. WINSLOW, '98, of the New York City College and the American Museum of Natural History, has been appointed advisory expert on public health education by the New York State Commission of Health.

WATSON NIGHTINGALE, '14, has been appointed by the United States Government, through the Bureau of Fisheries, as naturalist on a special expedition into northern waters. Mr. Nightingale will make a series of microscopic observations of plant and animal life on the Grand Banks off the coast of Labrador. He also will make a hydrographic study of the surrounding waters to determine the flow of the current. Part of his work will be to determine the chemical content, principally chlorine, and its relation to fish life. The various phases of the Labrador current will be studied at different stations.

K. Y. KWONG, '84, who has been identified with the building of railroads in China for many years, was the subject of an article in the *Far Eastern Review*, as the engineer-in-chief of the Pekin-Kalgan-Tatungfu Railway.

When the Kalgan road was entrusted to a Chinese engineer, foreign railroad builders doubted whether the line could be completed without outside assistance. The engineer-in-chief was Mr. Jeme

Tien-Yu, who made a phenomenal success of the undertaking. Mr. Jeme's mantle has fallen on Mr. Kwong, who has directed the Changshui construction.

FRED W. RANNO, '89, has recently been appointed senior civil engineer for service in the Eastern District, Division of Valuation, Interstate Commerce Commission, Washington. Mr. Ranno has been connected with railroads in various engineering capacities, as well as in the construction of new roads since leaving the Institute in 1889, and is particularly fitted for the work to which he has just been appointed.

ROBERT FRAZER, JR., '00, of Philadelphia, who has been consul at Malaga, Spain, has been transferred to Bahia, Brazil. Mr. Frazer has been in the consular service since 1908.

S. M. GUNN, '04, was made acting commissioner of labor and industries of Massachusetts on the resignation of Robert N. Turner as commissioner, which occurred recently. Mr. Gunn was made a member of this board not long ago.

F. B. MASTERS, '95, was the subject of a sketch in a recent issue of the *American Club Woman*. Mr. Masters became an artist after leaving the Institute, but his technical training probably influenced his drawings after all, and many of his subjects are along engineering lines. He does not confine himself to these subjects, however, as he is the author of many fine landscapes and marine studies.

WILLIAM C. EDES, '75, has been chosen by Secretary Lane of the Department of the Interior as one of the two members of the Alaskan Engineering Commission, which will have charge of the location of the railroads in Alaska under the recently enacted Alaskan railroad act.

Mr. Edes is generally considered the foremost authority in railroad location and construction in the West. He has been actively engaged in railroad engineering since 1878, and is at present dean of the railroad engineers in the United States. For seven years he has been chief engineer of the Northwestern Pacific, and among his achievements in this position was the construction of that road through the Eel River canyon, the heaviest piece of railroad engineering ever undertaken west of the Rockies.

A. T. Bradlee, '88, was recently awarded the medal offered by the National Association of Cotton Manufacturers for investigations upon the effects of moisture in testing cotton yarns and fabrics.

Joseph H. Friedlander, '91, of New York, has been made a Knight of the Legion of Honor by the French government. Mr. Friedlander founded one of the first ateliers in conjunction with the work of the Beaux Arts Society in New York. He is president of the American group of the Societe des Architectes Diplomes par le Gouvernement, a trustee of the Museum of French Art in the United States, and a member of the advisory board of the French Drama Society.

Some of Mr. Friedlander's executed architectural works include the Perry Memorial at Put-In-Bay, the Portland Auditorium, the Importers and Traders National Bank, and the Harlem Hospital.

Philip Little, '79, a well-known artist of Salem, Mass., has been given the high honor of an invitation to send three of his latest canvases to the Paris Salon for exhibition this coming fall. The selection is left to Mr. Little, and the paintings will be accepted without any jury passing upon them. The other condition is that the pictures shall be American in character and such as he would consider an honor to himself and his country. This kind of invitation is extended only to the foremost painters.

J. E. Rush, '12, has been made assistant professor, having in charge the departments of biology and bacteriology, at the Carnegie Technical Schools, Pittsburgh. After being graduated from the Institute, Doctor Rush went to the University of Wisconsin, where he filled the chair of bacteriology. Before taking up his new work he will complete a sanitary survey of northern Wisconsin, for the State Board of Health, which he has already undertaken.

A. A. Potter, '03, professor of steam and gas engineering at the Kansas State Agricultural College, has been appointed dean of the engineering division and director of the engineering experimenting station of the same institution. Mr. Potter will still retain the professorship of steam and gas engineering. After being graduated from the Institute in 1903, Professor Potter was employed by the General Electric Company in steam turbine work from 1903 to 1905. He came to the Kansas State Agricultural College in 1905

as assistant professor of mechanical engineering and was made professor of steam and gas engineering in 1910.

KENNETH E. CARPENTER, '09, one of the successful competitors for the *Prix de Rome*, who is now studying in Rome, was an exhibitor at an exhibition of the work of the School of Fine Arts, recently held in that city. Among the drawings shown there was included the Temple of Mars, the Palazza of Piccolomini at Siene, and the Library of the new American Academy on the Janiculum.

SAMUEL C. STICKNEY, '86, formerly assistant to the president of the Erie Railroad, has just been appointed assistant general manager of that road and its subsidiary companies, with headquarters in New York.

SEVERANCE BURRAGE, '92, has been made president of the Indiana Academy of Sciences, and presided at its recent meetings, held at South Bend, Indiana, May 28–30.

WILLIAM D. COOLIDGE, '96, assistant director of the research laboratory of the General Electric Company of Schenectady, New York, has been awarded the Rumford Medal of the American Academy of Arts and Sciences, for his invention of ductile tungsten and its application to the production of radiation.

Two important discoveries by Dr. Coolidge have recently been announced: one is a successful method of drawing tungsten into wire for lamp filaments; the other is a method of producing X-rays of remarkable penetrating power. The new apparatus is based on the fact that certain metals, like platinum and tungsten, when heated in a vacuum, give off a stream of charged particles. In the vacuum tube of the new lamp a tungsten cathode is heated electrically until it gives off a stream of charged ions that strike against a tungsten plate. The operator is in perfect control of the intensity of the rays, and can regulate them so as to show the soft tissues of the body, even the veins and nerves. The ray of the tube will penetrate from ten to twenty times as far as the rays from the old tubes.

Dr. Coolidge was born in Hudson, Mass., in 1873. After graduating from the Institute, he took his Ph. D. in Leipsig in 1899. He taught in the chemical department of the Institute until 1905, when he went with the General Electric Company as research

physico-chemist. In 1908 he was made assistant director of the research laboratory.

EDWIN H. BLASHFIELD, '69, mural painter, of New York City, was awarded the honorary degree of A. M. at the commencement exercises of Yale University last month.

CHARLES A. STONE, '88, of Boston, was awarded the honorary degree of A. M. at the recent commencement exercises of Harvard University. In conferring this degree President Lowell characterized the recipient in the following terms: "Charles Augustus Stone, engineer by profession; manager of vast interests that serve the public; trustee of the Massachusetts Institute of Technology; a man with large views of large things."

FRANCIS C. LINCOLN, '00, formerly associate professor in the Mining Department of the University of Illinois, has been made the head of the Mackay School of Mines of the University of Nevada, Reno, Nevada.

PUBLICATIONS OF THE INSTITUTE STAFF

ROBERT PAYNE BIGELOW. Chromosomes. *Reference Handbook of the Medical Sciences.* Edition 3. Vol. 3, P. 52–57. Illustrated. 1914.

ROBERT PAYNE BIGELOW. Coelom. *Reference Handbook of the Medical Sciences.* Edition 3. Vol. 3, Pp. 137–148. Illustrated. 1914.

ROBERT PAYNE BIGELOW. Differentiation. *Reference Handbook of the Medical Sciences.* Edition 3. Vol. 3, Pp. 568–572. 1914

ARTHUR A. BLANCHARD and FRANK B. WADE. Foundations of Chemistry. Pp. 450. Illustrated. Size 12mo, American Book Company, 1914.

HAROLD A. EVERETT. Stability of Life-boats. *Transactions,* Society of Naval Aids and Marine Engineers. 1914.

CARLE R. HAYWARD. The Equilibrium Diagram of the System Cu_2S–Ni_3S_2. *Bulletin,* American Institute of Mining Engineers. P. 45, pp. 12. Illustrated. January, 1914.

J. C. HUNSAKER. Facilities for Aeronautical Research in Europe. *Bulletin* of Aero Club of America. Pp. 30. Illustrated. March and April, 1914.

J. C. HUNSAKER. Present Status of Airships in Europe. *Journal* of the Franklin Institute. Pp. 60. Illustrated. June, 1914.

FREDERIC H. LAHEE. Late Pleistocene Glaciation in the Boston Basin. *American Journal of Science.* Vol. 37, p. 316, Pp. 3. April, 1914.

W. V. LYON. Problems in Alternating Current Machinery. Pp. 136. McGraw-Hill Book Company. New York City. January, 1914.

W. V. LYON. Transformers in Parallel. *Electrical World.* Illustrated: Vector diagrams. Size: 7200 words. February 7 and 14, 1914.

LEONARD M. PASSANO. The College as a Commercial Factory. Part II. *Educational Review.* Vol. 47, No. 4. April, 1914.

LEONARD M. PASSANO. Academic Efficiency Undefined and Unrewarded. *Bulletin* of the Society for the Promotion of Engineering Education. Vol. 4, Pp. 8. April, 1914.

J. W. PHELAN and E. C. CROCKER. The Complete Analysis of Bronzes and Brasses. *The Brass World.* Vol. 10, No. 5, P. 170. May, 1914.

CHARLES M. SPOFFORD. Summer Surveying Camp—Season of 1913. *The Technology Review.* Vol. 15, p. 689. December, 1913.

MISCELLANEOUS CLIPPINGS

The Tech and the State

The alumni of the Massachusetts Institute of Technology established less than ten years ago a representative body called the Alumni Council. It is made up of one member from each graduated class, one from each large local club, and a few members chosen from the alumni at large. It contains about seventy-five men, representing every geographical centre of Technology interest and every age, from the youngest to the oldest, among the graduates of the Institute. It holds no official place in the administrative scheme, but has already demonstrated its usefulness by initiating and formulating projects to be realized by action on the part of the Institute authorities. It has thus made itself the audible voice of the alumni body—a voice of great value to any institution.

Last week that voice uttered itself in a report of a special committee of the Council upon the possibilities of definite coöperation between the State and the Institute in matters on which technical, scientific advice could, and should, be turned to public advantage. The plan in general is an application of the "Wisconsin idea" to a state without a university under the direct control of the state government, but well provided with technical schools of a high order. Since the project concerns itself only with applied science—the field in which Harvard and Technology are planning to coöperate—it has what may fairly be called a personal interest for the friends of Harvard. But were there no prospect of coöperation it would still challenge the careful attention of all the Massachusetts institutions in which science is taught, for it is frankly an inter-institutional plan.

The report recommends the appointment by the governor of a permanent committee on coöperation, which shall propose legislation to increase and "regularize" the services of the members of the faculties of Technology and other institutions on State boards and commissions conducting work that calls for scientific skill or advice. The joint use of laboratories for educational purposes and State needs is to be considered—and also the establishment of a bureau of technical information for furnishing without substantial expense such advice in technical matters as the State and the public may require.

The reported commendations of the plan by the President of the Institute and the Massachusetts Commissioner of Education indicate that the authorities both of the Institute and of the State are disposed to regard it favorably. Before it can go into effect it seems likely that the Technology Faculty will have grown into that "joint faculty" of Tech and

Harvard for which the "Agreement" between the two institutions provides. But whether this happens or not, or whether the proposed legislation ever finds its way to the statute-books, the significant point in the whole matter is that another project is born for bringing our institutions of higher learning, in the intensely practical field of applied science, into coöperation with the State and with each other in a project which has for its purpose the better service of the entire community. It is one of the projects belonging not only to the century but to the decade in which we are living.—*Harvard Alumni Bulletin.*

Ex-Governor Draper

Within the past few months death has taken a heavy toll of the ranks of men prominent in business and public affairs in Boston and the State, but none of them has been better known to the people of Massachusetts than former Governor Eben S. Draper, who died Thursday in South Carolina, where a few days previously he had been stricken. The public had been prepared by daily bulletins for this result. His death was less a surprise than the shock that laid him low, for he was at an age when men are frequently at their best, and as regards his mental faculties this might have been said of him a week ago. But he had led a very busy life and the burden of accumulated activities was too great a strain upon his vitality.

He possessed qualities of a very high order. He attained distinction in the great business with which he was connected as much by his fairness as by his sagacity. He helped to make the community where he lived and where the headquarters of his large enterprises were located a model for manufacturers. He was practically solicitous for the comfort and general welfare of his employees, but it was in his public service that he became best known to the people of the State. Thrice lieutenant governor and twice governor, he served the Commonwealth with honor and high credit. He was an executive whose promises were always to be depended upon. He made them carefully, but he observed them scrupulously. Perhaps he was too direct in his methods to rank as a successful politician, but he was better than that; he was a good governor and even those who were once opposed to him are now ready to admit it.

Perhaps one of his finest qualities was his courage in the executive office. Courage is not always popular, but when joined with conviction it is always admirable. There were questions coming before him that were politically embarrassing, but he decided them as he believed the public welfare demanded rather than on the basis of what might have seemed expediency. He was never a drone in any hive, and lived up to the full measure of his responsibilities whether in public or private service. His friendships were strong, though he did not form them as freely as some men. So were his domestic ties, and the loss of his wife was doubtless one of the causes that hastened what seems a premature termination of his life and labors. His

record will give him an honorable place in the history of his generation. He was one of the State's best citizens and an executive whose name will always stand well in a list more than ordinarily distinguished.—*Transcript*, Boston.

Naval Expert in Aerodynamics

Lieutenant Jerome C. Hunsaker, '12, U. S. Navy, who was detailed by the Navy Department as an instructor in aerodynamics at the Massachusetts Institute of Technology, has been developing his field in notable ways. That officer was one of the few to recently take a flight in the Burgess-Dunne aeroplane, with which a week ago was made a series of experiments at Marblehead, Mass. Under the Boston institution there has been erected in Cambridge a new aerodynamic laboratory. This is established by the Institute out of its own funds, and the department to which it belongs is that of naval architecture and marine engineering, of which Professor C. H. Peabody is head. The new building is a modest construction on the Institute's land in Cambridge, and the portion of its equipment that is first to be installed is the four-foot wind tunnel with its accompanying blower. This is of the pattern now in use at the national physical station at Teddington, England, an up-to-date institution which has graciously furnished the plans of its own well-tested apparatus. One result will be that when Technology gets the machinery in place it will be able to start ahead at full speed. The preliminary ground, in which it is usually necessary to spend time in experimenting, has been pretty well worked over, and results may here be looked for, while the patterning of the station after one of known success will point to immediate effectiveness in the tests. Lieutenant Hunsaker, as soon as he was detailed for the work at Tech, of which he is a graduate, was sent to Europe, where he acquainted himself with the status of the science. He visited the principal laboratories and assembled the best opinions on the subject. In his report to President Maclaurin he recommended the adoption of certain lines of study and the establishment of a laboratory in which work or experiment might be carried on. So soon has Technology begun the work seriously. In the past it has not been negligent and has done what was possible under its crowded conditions.—*Army and Navy Register*, Washington, D. C.

Good Roads

The extent to which the remarkable increase in the use of motor-driven road vehicles has impressed upon every community the importance of good roads is very well illustrated by the recent establishment at the Massachustts Institute of Technology, in Boston, of a course in highway engineering. The economic value of good roads has of course been known from the earliest times. Rome conquered the world not least because the Romans were road builders who builded for all time. But that value has too often been lost sight of in newer com-

munities and in certain portions of this great country of ours especially has it been ignored even long before the advent of the automobile made a new demand for good roads.

A reawakening to the value of good roads, no matter what the class of vehicle that uses them, is directly traceable to the automobile. The automobile has set a new standard for road building that is bound to make for the benefit of transportation of every kind. A road suited to the weight and speed of an automobile, a road fit to withstand the tremendous strains imposed by a machine weighing four thousand pounds and moving at a rate of fifty miles an hour, will save the farmer in wear and tear, as he plods to market behind his humble horse, expense that will go far to reduce the cost of living.

The road builder of this day of the automobile cannot have too much technical knowledge of chemistry and mineralogy, both of which enter into the construction of the best roads. The need of expert knowledge is also emphasized by the amount of money being expended today in the building of good roads. In 1912, $43,000,000 was expended in the country at large, of which about $4,000,000, or more than in any other State except New York, was spent in Pennsylvania. Thanks largely to the automobile, the importance of good roads is realized in this country today as it has never been before.—*Philadelphia Press.*

Financial and Engineering Techniques

Massachusetts Institute of Technology announces that henceforth such of its students as are being trained to be engineers may at the same time be taught the fundamental processes of business technique as they are conceived of today by men who realize that there is a science as well as an art of industry, commerce and finance. Any person at all conversant with the tasks devolving upon the modern engineer as he goes about his work in either the old or the newly settled regions of the globe can at once see that a man who takes advantage of this new program and graduates with the double technical equipment will start in the professional race with a long lead over the engineer who knows only engineering. The latter class may continue to make admirable technical advisers and serviceable subordinates. Men with the dual training will probably be in demand for the commanding administrative positions implicit in all the greatest tasks of the time so far as they have to do with man's conquest of nature, his alteration of waterways, his bridging of valleys, his development of urban subways, his boring under mountains and his harnessing of new sources of motor power to carry on the vast transportation work of humanity. Other things being equal, when capital in large amounts seeking safe investment turns to find builders of dams, reservoirs, power-transmission systems, ore-mining and ore-converting plants, and kindred modes of getting wealth, it will choose the man who, after he has

created the machinery, can operate it most prudently, can find markets for its products, and can figure on its values in competitive business.

From the civic standpoint the Institute's project seems full of promise. Men trained after the fashion of those who will have this dual equipment seem to us much needed for federal, state and city commissions that are charged with supervising all projects of conservation and with reducing to a minimum the burdens of taxpayers.—*Christian Science Monitor*, Boston.

To Teach the Art of Flying

The Massachusetts Institute of Technology is to start a course in aerodynamics, which, it is claimed, will be the first attempt by any public institution of learning in this country to establish a branch of schooling in this particular branch of science. In England, France and Germany there are a number of schools and institutes which include technical courses in aeronautics, but this country has lagged behind in this matter up to the present time.

Although the United States produced the first aeroplane, the countries of the old world have done more with the idea than we have. They have developed the airship because they see the use of it in war, especially for scouting. As a commercial venture the airship has yet to prove itself. So far the airships designed for trade purposes are unreliable, expensive, and can carry very little weight. People in large numbers have not yet taken them up for sport, as they are too expensive, but the governments of the world are keenly interested in air craft.

Just how long it will be before aeroplanes and airships are perfected to a point that will make them freely available for commercial purposes is a matter of conjecture, but keen experts declare this time is surely coming and will make a vast difference in the world's affairs. It is both desirable and essential, therefore, that this country should keep abreast of the times in training and educating at least some of its citizens in the technical details and principles of aeronautics. And to do this properly and successfully there is evident need of established courses, such as the one proposed by the Massachusetts Institute of Technology.—*The Northwestern*, Oshkosh, Wis.

Solomon's Temple a Bungalow

From now on until the new Tech is dedicated, the expansive site across the Charles will be a busy hive of industry. The first "pouring" took place Thursday, and from henceforth this kind of a tea-party will be a continuous performance for a number of months to come. It will be the biggest enterprise in the history of educational construction recorded up to the present time, and when completed it will make King Solomon's temple look like a bungalow. It will require the services of a large industrial army representing the latest expression of architectural art and engineering science, and the result will be not merely a great educational plant but a marvel

of design and grouping that will be one of the special attractions of Boston and the University City, for although it has taken a step beyond its ancient jurisdiction, the spectacular effect will be quite as pronounced from this side of the stream as from the other.—*Transcript*, Boston.

Business for Engineers

The Institute of Technology has done a very sensible thing in planning to give its students the option of a course in business administration. The engineer of the future must be a business man, as well as an engineer, if he is to give the community the full benefit of his education. Technology has always stood for the larger education for its graduates. The sons of Tech are never narrow and the new course means that they will be broader and more competent than ever. The engineer has a great prospect ahead of him. More and more, states and municipalities are coming to the position that they require a good deal of their work to be done by experts. If the experts are business men, as well as graduates of a technical school, so much the better. In the new course, Tech has, as usual, kept well ahead of the demand of the times.—*Advertiser*, Boston.

Tech's Athletic Field

Tech's new athletic field, directly adjacent to the new buildings of the Institute, will mean an enormous increase in track sport among the wearers of the Cardinal and Gray. M. I. T. should become a real power in college athletics. If Dartmouth continues to be a member of the New England Intercollegiate Association, supremacy in that organization bids fair to be hotly disputed, in two or three years at the outside. The new track will have longer curves than the Stadium track and will be wide enough to accommodate five hurdlers along the straightaway, conforming to the new rules of the Intercollegiate Four-A.—*Journal*, Boston.

I see that the high and low extremes in architecture in New York are both the work of Tech men. The Woolworth building, 800 feet high, was designed by Cass Gilbert, Tech '81, and the bottom of the great Catskill aqueduct, 700 feet below the level of the sidewalk, is the work of J. Waldo Smith, '87, another graduate of the Massachusetts institution.—*Post*, Boston.

Tech is going to offer to help out the state. This does not mean that it is going to offer to pay taxes, but that it is anxious to pay in brains, what some would like to see paid in money. Tech brains are worth considerable money and the state authorities should realize this.—*Advertiser*, Boston.

BOOK REVIEWS

THE FUTURE OF THE WORKING CLASSES. By Roger W. Babson, '98. Boards, 5 x 8 in.; 76 pages. Boston, Babson Statistical Organization, Inc. $0.50.

Arguing from an economic basis, Mr. Babson concludes that the improvement of the working classes will come only through increasing their efficiency, or, in his way of putting it, enlarging their capacity for more responsible work. While in his conclusion most people will agree, it is doubtful whether they will be able to see that conclusions follow logically from the premises he lays down. While in Mr. Babson's own mind the steps may be clear, it will require more detailed discussion than is given in this little book to show others the connection. The method he proposes for increasing the capacity of the workers is economic education, in which work of shop grade, and for which the child, or his parent, will be paid, starts at the age of nine. But two hours are given to work at the start, gradually increasing to a full eight hours at the age of 22. This conception, while more elaborate, is fundamentally that of the continuation school. Mr. Babson would start actual work earlier and continue it later. With the great interest now shown in continuation, vocational and corporation schools, it will be surprising if expansion along the lines of better economic education does not come rapidly. That it will go to the length of Mr. Babson's plan, however, is doubtful. His belief that the financial powers are not in favor of better education of the workers is open to much discussion. If it is taken sweepingly it is untrue; if applied to certain industries, the charge, unfortunately must lie, but even then condemnation—and it is deserved —should be accompanied by a full understanding of the special conditions of the industry.—*Engineering Record.*

APPLIED MECHANICS. By C. E. Fuller, '92 and W. A. Johnston, '92, professors of Theoretical and Applied Mechanics, *Massachusetts Institute of Technology,* Boston, Mass. 380 pages, 6 in. by 9 in. Bound in cloth. Illustrated. Published by John Wiley & Sons, Inc., New York. Price $2.50.

This is the first volume of a series of books on applied mechanics that are to be written by the authors. It is written primarily for students who have had a preliminary training in the principles of mechanics, such as is given in a course of physics, and in the elements of mechanism. Volume I deals with statics and kinetics. It contains five chapters; the first is a general introduction; the second, on statics, includes a thorough discussion of forces; the third, on center of gravity, discusses both plane surfaces and solids; the fourth, on moment of inertia is handled in a similar manner, and the fifth, on kinetics, including kinematics, work, power and energy, friction, kinetics of rigid bodies having plane motion only, and impact. This book is probably the most complete work written on these subjects, as the authors have had many years of successful experience in teaching applied mechanics, and fully appreciate what a student of this subject requires. It is evident from the way in which the book is written that the authors have taken advantage of their teaching experience, and as a result have presented a book that may be readily digested by the student. Efforts have been made to keep away from com-

plicated expressions with a view to simplicity, and where it has been thought necessary, illustrative examples have been added to make the work more readily understood.—*Railway Age Gazette.*

CLEAN WATER AND HOW TO GET IT. By Allen Hazen, '88. Second Edition. New York, John Wiley & Sons. 1914. Pp. 181. $1.50.

Mr. Hazen's book is decidedly American in point of view and makes a strong case for the filtration of public water supplies as a means of protecting municipalities against typhoid and other forms of disease and for the improvement which can be so produced in the appearance, taste and odor of surface waters.

By some, the book will be regarded as too condensed to give a comprehensive knowledge of the many topics dealt with, but the volume is not intended to be exhaustive. It is such a statement of the essential principles of American water purification practice as Mr. Hazen's large experience as a consulting engineer in this field has led him to believe would be useful to beginners. There is no better textbook for persons desiring a knowledge of water purification in the United States.

There are eighteen chapters in Mr. Hazen's book, including such topics as water supplies from rivers, lakes and wells; the history of water purification in the United States; storage of filtered water; use and measurement of water; suitable pressure to be supplied in water works systems; effect of iron pipes on water, and the layout of works. The subjects dealt with include sand filters, mechanical filters, coagulation basins and aeration.

The book is well illustrated with half-tones and is produced with the usual excellence of the Wiley press. The first edition, published seven years ago, has been revised and expanded.—GEORGE A. SOPER in *Science.*

REGISTER AND CLASSIFIED DIRECTORY, published by the Northwestern Association, M. I. T., 64 pages, board covers.

With its usual enterprise the Northwestern Association issued a directory just before the all-Technology convention in February, which contains the reunion program, list of the officers of the Northwestern Association, alphabetical list of members with home and business addresses; also telephone numbers; index by class; classified professional directory; and classified commercial directory. This little directory will be very useful to members of the association, and to men who frequently visit Chicago. It is printed in good taste, and is of convenient size to be carried in the pocket.

REPORT OF THE HAWAIIAN VOLCANO OBSERVATORY OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY AND THE HAWAIIAN RESEARCH ASSOCIATION. By T. A. Jaggar, Director. Published by the Society of Arts of the Massachusetts Institute of Technology, Boston. Paper covers, 7 x 10 inches, 74 pages, 45 illustrations.

The first "Report of the Hawaiian Volcano Observatory," T. A. Jaggar, Director, published by the Society of Arts of the Institute, has recently been issued. Before reviewing the report, a few remarks on volcanic geology are here given, to serve by way of introduction and explanation.

Igneous rocks are those which form by the consolidation of molten matter called *magma.* If the magma reaches the surface before solidification it is termed *lava* and the resulting material is spoken of as a volcanic rock.

The formation of lava is always accompanied by volcanic action. This may be of the type of fissure eruption, to which some Icelandic volcanoes belong, or it may be of the central vent type, such as Vesuvius or Etna. Eruptions from volcanoes of the central vent type may be explosive, the volcano ejecting pumice, finely comminuted lava (the so-called ash), volcanic bombs, etc., accompanied by huge clouds of steam and other gases. Sometimes the eruption is not accompanied by any significant amount of explosive activity, the lava welling quietly out of the throat of the crater, and flowing down the slopes of the cone. Mauna Loa, in the Hawaiian Islands, erupts in this manner.

The volcanoes of the Island of Hawaii, particularly Kilauea, offer exceptional advantages for the study of volcanic action. Combined with these are numerous other desirable features, making the location a strategic one from which to attack the problem of the earth-sciences. These, and other interesting facts are set forth in the report under consideration, which is a pamphlet of 74 pages.

The table of contents reads as follows:

It will thus be seen that the report does not cover the last two years. This deficiency is partly filled by the data contained in the "Weekly Bulletins of the Hawaiian Volcano Observatory" published at Honolulu by the Pacific Commercial Advertiser.

In the part of the report dealing with the foundation of the observatory are found the reasons for selecting Kilauea as a location, and also data on the connection between Technology and the Hawaiian Volcano Observatory.

The larger part of the report is a statement of observations made on the volcano Kilauea from 1909 to 1912. Of particular interest is Mr. Shepherd's description (pp. 47–50) of the way in which the temperature of the liquid lava was measured directly by lowering a pyrometer into the crater. A cable was stretched across the opening, and the instrument lowered by means of a traveling pulley. Two thermometers were destroyed without any reading resulting, but on the third attempt a value of 1000° centigrade (1832 Fahrenheit) was obtained, though this instrument was also lost.

J. D. MacKenzie, '11.

Directory of the Class of 1907, M. I. T., published by the class of '07, 16 pages, paper covers.

This directory is geographically arranged, with spaces after each state for the purpose of making additions. If only one arrangement can be had, the geographical arrangement seems best, as it serves to bring the men together in the various territories.

NEWS FROM THE CLASSES

1868.

ROBERT H. RICHARDS, *Sec.*, Mass. Inst. Tech., Boston, Mass.

The news of the secretary's retirement from active duties at the Institute has doubtless come to all members of '68. Greater leisure and opportunities will, of course, follow this step, and as to the immediate future—a trip to the western concentrating mills to bring some publications on that subject up to date is planned. For that purpose, the secretary will visit Lake Superior, Montana, Idaho, California, Nevada, and Utah during the next two months. In November he hopes to continue his travels, going to Arizona, New Mexico and Minnesota.

The Pops this year were a great success, and we had a larger number than usual of the five earliest classes. It was very delightful to see the old friends back among us.

William M. R. French, director of the Art Institute of Chicago since 1879 and well known all over the United States through his lectures, and as an authority on art, died in Chicago, June 3. He was born in Exeter, N. H., October 1, 1844, and was graduated from Harvard University in 1864, taking a special course in engineering at the Institute. He became associated with a firm of engineers in Boston and was engaged in civil engineering and landscape gardening until 1877, when he went to Chicago and became connected with the Chicago Art Institute, then known as the Academy of Design of Chicago. He was chosen director in 1879, a position which he held at the time of his death.

He married Sarah M. Lovejoy, on September 9, 1879. She died on August 28, 1890, and Mr. French married Alice Helm of Chicago, who survives him. He leaves two sons, Henry M. and Prentiss.

1871.

EDWARD W. ROLLINS, *Sec.*, Dover, New Hampshire.

Mr. Albert H. Howland, '71, died suddenly of heart trouble, on April 6, at his apartments on Concord Square, Boston. Mr. Howland was born in 1846 at West Barnstable, Mass., where his ancestors had lived since colonial days. Previous to coming to the Institute he was graduated from Amherst. As a student he always ranked high, especially in mathematics, and after graduation he was urged to become instructor in mathematics at the Institute. Mr. Howland's professional work was largely confined to bridge building and other structures requiring truss work. He acquired considerable notice on the part of engineering by his diagnosis of

the Ashtabula bridge disaster of some years ago. The deductions he made at that time have since been generally recognized as correct. Among the well-known structures in the vicinity of Boston, in the building of which Mr. Howland was consulted, is Memorial Hall of Harvard University.

1875.

EDWARD A. W. HAMMATT, *Sec.*, 15 Water Street, Newton Center, Mass.

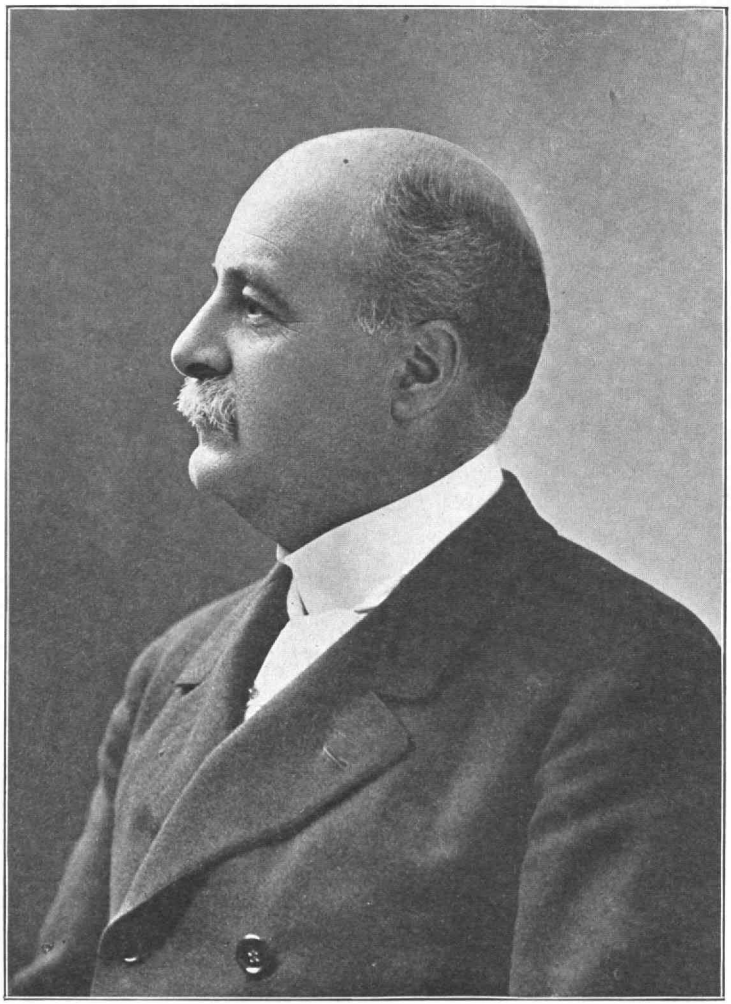
William Cushing Edes, who has recently been appointed chairman of the Alaskan Railway Commission, was born in Bolton, Mass., Jan. 14, 1856, entered Tech in 1871 and was graduated in 1875. He was with the Spring Valley Water Company, San Francisco, in 1877 and 1878, and then for three years on So. Pac. R. R. location in Arizona, New Mexico and Texas, as officeman, leveller and chief of party. On account of his health, he came north for a few years, and returned to the So. Pac. R. R. in 1886, and was on location work for ten years. For five years he was chief assistant engineer S. F. & S. J. Valley R. R., then five years assistant engineer So. Pac. location in California, Oregon, Arizona, etc., seven years chief engineer of Northwestern Pac. R. R. The class congratulates Bill that his abilities as an engineer on railroad location have been so publicly recognized.—John H. P. Hughart, who has been general manager of the Grand Rapids and Indiana R. R. for some years, was recently elected president of the road.—The firm of Hartwell, Richards and Driver, architects, of which W. C. Richardson, of '75, is a member, have moved from 62 Devonshire street to 27 State street, Boston.

1877.

RICHARD A. HALE, *Sec.*, Lawrence, Mass.

George W. Kittredge gave an illustrated talk on the Panama Canal at North Andover on May 20, 1914. As Mr. Kittredge spent several days with Colonel Goethals in various parts of the work, his talk was of unusual interest.—R. D. Andrews is actively engaged in the plans for the addition of the new wings to the State House which are now under construction.—Fairbanks and the secretary represented the class at the Pop concert, June, 1914.

The host of friends of Prof. George F. Swain will learn with deep regret of the death of his wife, Mary Hayden Lord Swain, on April 30. As the ranking lady of the society during Professor Swain's presidency of the American Society of Civil Engineers she proved a most charming hostess and won unnumbered friends by her cordiality, her catholicity of interest and her remarkable personality. She compelled not only the admiration but also the affection of those she met.



EBEN S. DRAPER, '78

1878.

E. P. Collier, *Sec.*, 256 Summer Street, Boston, Mass.

Eben S. Draper

Born June 17, 1858. Died April 9, 1914

Eben S. Draper, '78, former governor of Massachusetts, died at Greenville, South Carolina, April 9. While traveling through the South, he was stricken with paralysis three days before his death, on his way to Florida and Cuba.

Eben S. Draper was born in Hopedale, Mass., June 17, 1858. He was the son of George Draper, one of the founders of the Hopedale community, an early experiment in communal coöperation. Ira Draper, his grandfather, was an inventor and manufacturer of temples for weaving. The business of making temples was carried on by Ira and George Draper, who kept taking up new inventions, and adding to the plant.

Eben Draper went to the Allen School in West Newton, and afterwards to the Institute of Technology. Although his father was, by this time, a man of great wealth, he made his son work out his own salvation in the cotton mills, where he gained an experience that was of great value to him in after life. Leaving the cotton mills, he went into the shops of the Draper plant, where he learned the business step by step from the bottom. He went at it with great enthusiasm, giving his entire thought and attention to it, and when, in 1906, the name of the concern was changed to the Draper Company, he became a member of the firm and its selling agent. In 1901, when Gen. William F. Draper withdrew, Eben S. Draper became the head of the business.

Mr. Draper was also connected with a number of other important interests. He was chairman and director of the Boston & Albany Railroad, director of the Harmony Mills, the Manville Company, the Milford National, and the National Shawmut banks, of the Old Colony Trust Company, the Queen City Cotton Company, and the Sawyer Spindle Company of Maine. In 1897 he was chairman of the Massachusetts delegation to the Nashville Exposition.

When he became governor, he resigned his directorship in the Boston & Albany Railroad, for, although it was managed by the New York Central, he felt that it was his duty to sever connection with the road under the circumstances.

As a politician, he was always a Republican and a believer in protection. He naturally became interested in politics as a young man, and, as he grew older, devoted more of his attention to it. In 1892, when he was thirty-four years old, he was made chairman of the Republican State Committee. Mr. Draper organized the party in the state on a sound basis, which resulted in most effective work. He refused re-election for a second time, however; although

he was actually re-elected twice, he refused to serve each time. In 1896 he was chairman of the Republican delegation to the National Republican Convention.

In 1908 when the principles of Canadian reciprocity and a tariff adjustment on a more liberal basis came to the front, he was aroused to activity, having been out of politics for practically a decade. Mr. Draper had the courage to fearlessly declare his own opinions without reserve and with perfect candor. It was said to be the most courageous thing of a very warm campaign.

He became the candidate for lieutenant-governor, and although he was outspokenly a strong protectionist, he was elected. In 1909, he was elected governor of the Commonwealth, and in this position he showed the courage of his convictions and a high devotion to duty. It was said of him that the question of expediency from a personal or party standpoint never appeared to occur to him. In 1910 he was re-elected governor for the second time; but in 1911 he was defeated by Eugene N. Foss.

Governor Draper had an important place in the community as a man and as a citizen. He was greatly interested in the town of Hopedale, where he lived, and took a great deal of interest in the welfare of its people.

As president of the Volunteer Relief Association of the Spanish War, he obtained for Massachusetts the honor of having the first hospital relief ship afloat, by securing $200,000 for this purpose. At the time of the Chelsea fire, he instituted relief measures while the fire was in progress, personally guaranteeing $20,000, on the spot, and the next morning organized the relief committee at the State House which raised a fund of nearly a half a million dollars.

In 1883 he married Nancy Bristow, a daughter of a famous Kentucky family, who died in Hopedale, Mass., September 24, 1913. They had three children who survived him: Bristow Draper, Dorothy, wife of T. P. Gannett, Jr., of Cambridge, and Eben S. Draper, Jr.

Mr. Draper was elected a member of the Corporation of the Institute of Technology in January, 1911, and from that time he became an important member of the governing board. As a successful financier he was often consulted with reference to matters of Institute policy and finance, and he always showed himself a loyal Tech alumnus. On the occasion of the Tech reunion in 1909, Governor Draper gave a reception to Institute alumni at the State House.

So many obituaries of Mr. Draper have been published that it seems unnecessary at this time to do more than touch on the principal points of his life.

He was born at Hopedale in 1858 and died at Greenville, S. C., in 1914. He entered the Massachusetts Institute of Technology in September, 1874, having passed his examinations the year

before, at the age of fifteen. At the end of his second year, he left the Institute to become a part of the business which his father had built up, and, at the age of twenty-one, was made a partner in the concern.

As he grew older, the scope of his activities widened. He made politics his avocation, became chairman of the Republican State Committee, delegate to the National Republican Convention and finally in turn lieutenant-governor and governor of the Commonwealth.

After the defeat, which his courage in handling the labor question brought him, he took up once more the conduct of his varied business affairs, in the midst of which he passed away, but a short time after the death of his estimable wife.

What has been said above is what has already been said of him in the daily press, with more or less exactness, but there was another part of his life, the record of which deserves to be preserved in the pages of this magazine.

He did not complete his course at the Institute, but, although he left it early as a student, he never lost his interest in it. For many years, and up to the time of his death, he was a member of its board of government and was always an active, working member. During his incumbency of the office, there came up the question of the merging of Technology with Harvard, the removal to a new site and the raising of the Walker Memorial Fund, in all of which he took an active part.

He not only gave liberally of his time and ability to all matters pertaining to the Institute, but his purse as well was always open for its needs and the needs of its students, often in ways that have never been published.

Whenever it was possible, he attended the annual reunions of the class of '78, on one occasion having the class meet as his guests at his winter home on Beacon street. At all these occasions, he dropped the rights and title of governor and was one of the boys again, entering into the spirit of the affair heartily and unaffectedly.

To his classmates, it was a source of pleasure and pride to follow his public career, noting how the enthusiastic, impulsive youth had grown into the well-equipped, serious man, handling all the questions and facing all the problems which came to him with industry, courage and thoroughness, not conceited by the magnitude of the office which he filled so well, but always conscious and mindful of the dignity of his position as governor of the Commonwealth of Massachusetts.

The members of his class were all appreciative of his coming to their last reunion in January, taking it as a compliment that he should desire to meet with them so soon after the bereavement he had suffered in the loss of his wife, and at his funeral, where the same men gathered once more, he in the spirit, they in the flesh, the remembrance of that last meeting seemed to soften the sadness of this one.

1881

FRANK E. CAME, *Sec.*, Metcalfe Apartments, Westmount, Quebec, P. Q.

FRANK H. BRIGGS, *Asst. Sec.*, 10 High Street, Boston, Mass.

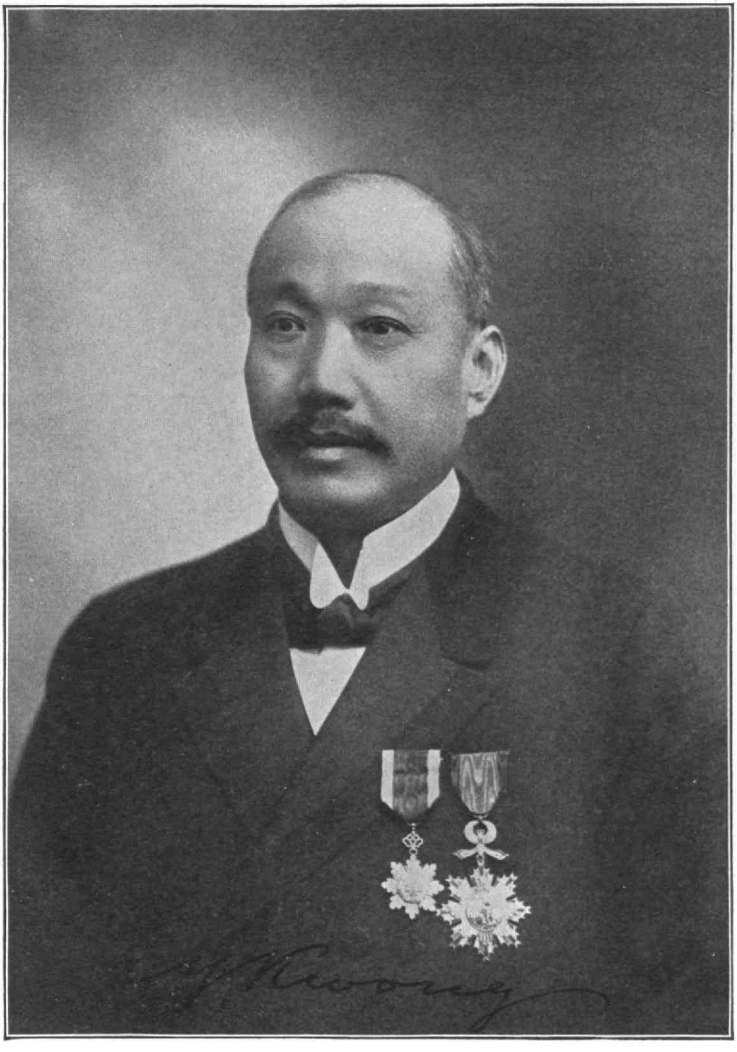
Ed Warren made a trip East during April and May, calling at Washington, New York and Boston, and seeing some of the fellows in each city.

1884.

HARRY W. TYLER, *Sec.*, Mass. Inst. of Tech., Boston, Mass.

The annual dinner of the class of '84 was held at the Engineers Club on Wednesday, April 1, 1914, with the gratifying attendance of fourteen, including Messrs. Adams, Appleton, Bennett, Bridgman, Coburn, Dearborn, Doane, Gill, Lull, Mellen, Puffer, Stuart, Tyler and Whitney. Interesting letters were read from Bardwell, duPont, Fong, Lyle, Weston, A. W. Whitney and other absent members, and a number of sensational wireless messages were read from members of the class who desired to prove that they still lived, the authenticity of these April 1st messages being however open to serious doubt. Fong's letter reports that Sung died last November. Mr. Sung was born in Shanghai, in 1859, and prepared for the Institute in the Somerville High School; returning to China at the end of his first year here, he entered the Naval School at Foochow and after passing his examinations became a midshipman on the training-ship *Yang Woo.* In 1894 he was appointed commander of the cruiser *Kwang Cha,* and during the war with Japan his ship was sunk in a naval engagement, he being rescued by a fishing boat. He continued in the navy until 1899, when he became associated with the Anglo-French Quicksilver Mining Company at Kweichow for eight years. Returning to Shanghai he was appointed commander of a gun-boat and was still in the service at last accounts.

A recent letter from K. Y. Kwong to the editor of the REVIEW expresses his hope of taking a trip to the States and making a visit to the Institute when the new buildings are completed. He will certainly receive a cordial welcome. He sent his photograph and a copy of *The Far Eastern Review,* Shanghai-Manila for November, 1913. The leading article is "An Appreciation of China's Railway Engineers," by George Bronson Rea. "When the construction of the Kalgan Railway was entrusted to a Chinese engineer, many foreign railway builders shook their heads and prophesied that the line could not be completed without their assistance. They refused to believe that any foreign educated Chinese engineer could successfully push a railway up the Nankau-Pass to Kalgan." Mr. Jeme, a Yale graduate, was, nevertheless, selected by the Chinese authorities, and set out with his associates to show the foreigners that they could build a serviceable line and



K. Y. KWONG, '84

keep the cost down to the Chinese idea of prices. This they accomplished by elimination of all "squeezes" and commissions, and by dealing directly with sub-contractors instead of through interpreters on whom the foreign engineers had necessarily depended. It is said that several of the sub-contractors on the Kalgan line committed suicide because of the strict supervision enforced. The cost of foreign-built railways through open country in China had averaged $50,000 per mile. The Kalgan line, with tunnels, rock cuts and costly embankments, were kept below $40,000 per mile, and since then still better records have been made. The writer states that he has traversed most of the railways in China, and is confident that the construction work in the Changshui extension is equal to the best built line in China, while its cost is far below any similar line in the world. The construction of this extension has been directed by Mr. Kwong, and his assistant engineers have never been outside of China. They have made every effort to perform the work with extreme care and solidity, and have erred, if at all, in constructing a line too good for the traffic requirements. Mr. Kwong and his associates are said to be worthy of all praise and commendation, and justly merit some form of appreciation on the part of the higher authorities in Peking in recognition of their services to the new republic.

News has recently been received of the death of F. H. Wakefield in September, 1913. Mr. Wakefield had been Notification Clerk in the House of Representatives at Washington.

Thirtieth Anniversary

The class celebrated its thirtieth anniversary, June 13–15. Saturday, June 13, Messrs. Appleton, Bennett, Bridgman, Coburn, Dearborn, Doane, Mellen, Lyle, and Mrs. Lyle, Prescott, Stuart and Tyler visited the Blue Hill Observatory, where they were courteously received and conducted by Professor McAdie, the present director of the observatory, who showed the class the site prepared for the new memorial fountain, and gave a brief account of Rotch's scientific work. Returning to the base of the hill, the party was joined by Chase, with Mrs. Chase and daughter, Mrs. Tyler and a daughter, and delightfully entertained at luncheon by Mrs. Rotch and her family. In the afternoon, nearly all continued, by trolley and rail, to Plymouth, making headquarters at the Pilgrim Hotel. In the evening the class were entertained by a moving picture exhibit, which was none the less "moving" for being purely imaginative. The description of the 1930 anniversary, celebrated at a well-known State institution in Danvers, caused continual thrills.

On Sunday the party was joined by French and C. S. Robinson. The forenoon was devoted mainly to a most interesting visit to Manomet Farms—the country home of Mr. C. A. Stone, '88. Mr. Stone's Arabian horses, Welsh ponies and Guernsey cows were

each more interesting than the others, and the attractions of the swimming pool were resisted with considerable difficulty. The afternoon was devoted by different groups to beach strolling and roaming about old Plymouth.

Monday found a somewhat depleted party of seven traversing the State road to Sagamore, where, by the courtesy of Mr. Waring, resident engineer of the Cape Cod Construction Company, the party was met by Mr. Ackerman, '03, assistant engineer, conducted by automobiles and motor boat to a point where two immense dredges are eating away the remaining fragment of land which still unites Cape Cod with the State of Massachusetts, then to the bridges near the head of Buzzard's Bay, and back to Sagamore.

The return to Boston was made by steamer, Monday afternoon. It was the unanimous sentiment of the sixteen members of the class who participated in the outing that it was a great success, and it was their hope that the thirty-fifth will be still more numerously attended—not only by members, but by wives and children.

The Class of '84 in Moving Pictures

Four reels of moving pictures, designed as an inspiration to the young.

Reel I, Scene 1

Time—Early in September, 1880.

Place—Hall in the old Rogers Building.

Dramatis Personæ—President, professors, and class of '84.

Each man in the class wonders how so many men were lucky enough to pass the entrance examinations.

Notes with interest the presence of ladies, Chinamen, and Mexicans. Kind and earnest words from the President and professors about the seriousness of Tech life. Queer pictures of half dressed men on the walls, doing useful stunts, absorb the attention of the class during this quiet half hour. Class files out and studies the bulletins in the lower hall. Sees bursar and the four years' battle is on.

Members of '84 easily recognized on the street by their haughty bearing.

Scene 2. A few weeks later

Election of class officers. As the big men of the class have not yet begun to develop, this is something of a lottery.—Even Tyler and Gill look no smarter than the rest of us. Wire pulling by French for a lieutenancy in the school militia.—Opposed by the Chauncy Hall gang, led by Bennett. French wins out and Bennett is made orderly sergeant to soothe his feelings.—Appleton, whose breast has since been covered with military medals, wears the plain blue coat of a private.

Reel II.

Time—June, 1909.

Place—Nantasket Beach and surrounding Sea and Land.

Dramatis Personæ.—Class of '84 escorted by classes of the '70's '80's, '90's and naughties, professors, instructors and brass band. Admiring crowd on the beach.—The yacht *Tech* lying at her moorings,

"As idle as a painted ship upon a painted ocean."

The open area in front of the Atlantic House crowded with admiring friends and relatives. Pretty girls galore, friends of the graduating class.

Stunts begin, which are of only ordinary interest until '84 is announced. Intense excitement. The band plays "Hail to the chief" and '84, with chests held high and walking stiff-kneed, proudly receive the applause of the multitude. A banner, with silver letters and carried by Fitch and Bothfeld announces

"'84—'84
We are good for a few years more."

Next Evening—Class dinner.

Time taken to study the men, to find how individual talents have developed and what the harvest has been. Hairy faces which were much in evidence during school years have given place to hairless domes. Fellows who were to rise in the world, either in the realm of letters or of finance, have already risen. Those who were to plod along with the rank and file accept their lot with cheerful hearts and thank their lucky stars it is no worse. Nearly all have been bitten with stock speculation of one kind or another.

Reel closes with a banquet in Symphony Hall in which the class shines at its worst—when it attempts to join in the singing.

Reel III.

Time—June 13, 1914.

Place—Plymouth by the Sea.

Dramatis Personæ—Wives, daughters and select representatives of the class of '84 gathered in palatial hotel, wondering why some never care for these reunions, regretting that others are detained by business or are too far away to come; and thinking of those, twenty in all, who will be no more with us except in memory.

Class more interested in its children than in itself. Girls growing into womanhood and boys growing into manhood, and possible candidates for Tech appear to be more interesting than success in the class room or the office, the mine or the store.

Even grand children are mentioned with pardonable pride. Visions of retiring after a few years to a quiet country estate with

the companionship of cows and hens are beginning to be cherished, a thing which would have been scoffed at ten years before.

Corpulency is on the increase and several good candidates for alderman are apparent.

Tyler still class secretary in spite of the most determined efforts to remove him, and that he intends to hold his job a while longer is evident from a recent announcement regarding the thirty-fifth meeting of the class, showing his intention of being secretary at that time.

Children present are reminded of the faithful and excellent work done by their parents during student years and hints are dropped as to the desirability of keeping up the high standard of scholarship set by '84.

Reel IV

Time—June, 1930.

Place—Danvers.

Scene, in large reception room of one of our State institutions. '84 Banner on the wall.

Dramatis Personæ—Several members of the class '84, relatives, old friends, nurses and attendants of the institution.

In one corner, a distinguished looking old man stands at a blackboard and is demonstrating to a group of friends that the circle can be squared, the angle trisected and the cube doubled by means of a new equation which he has just discovered, although all his life he has assured ambitious students that these things could not be done.

At a table in a quiet corner of the room sits a man with a youthful face above which rises a dome reminding one of the one on the State House, except that this is white while that is yellow. On one side of the table are vials of various colors and smells, while on the other side are pieces of iron, copper and tin. He is explaining to a friend that by mixing all these things together and adding a new element which he has just discovered, but to which he has given no name, pure gold will result.

Standing in the center of the room is a tall, well-preserved man, who is declaiming, with great vehemence, against the policy of free trade, recently adopted by the Government, saying that it will close all the custom houses and he will be out of a job just as he is becoming proficient in it.

In the midst of this harangue the postman comes and lays several large envelopes on the table.

Instantly three of the inmates leap forward and tear open the sacks. The attendant explains that these are the quarterly pensions from the Carnegie Fund for Retired Teachers, and that for two or three days after receiving them the recipients are entirely normal, although towards the end of each quarter they often become violent and unmanageable.

Off in one corner of the yard and just visible from the windows of the reception room is a large cage, padded, and with heavy bars in front. In it half a dozen men rushing back and forth as though trying to get out and join the crowd. These, the attendant explains, are men who never came to class dinners or re-unions after leaving Tech, and it would be unwise to let them out now as they would hardly know how to conduct themselves.

This reel concludes with a Virginia Reel in which inmates, old friends, relatives, nurses and attendants join.

1885.

I. W. LITCHFIELD, *Sec.*, Mass. Inst. of Tech., Boston, Mass.

The annual class dinner was held at the St. Botolph Club on the Saturday evening before Easter, as usual, which occurred this year on April 4. Those present were: Allen, Bates, Brown, Eaton, Frazer, Fiske, Hayes, Homer, F. Kimball, Litchfield, Little, Nye, Osgood, Pierce, Plaisted, Pratt, Rawson, Schubmehl, Steele, Spalding, Talbot, White.

The election of officers resulted in the election of Charles W. Eaton as president, and I. W. Litchfield, secretary. There are one or two members who find it impossible to attend the class dinner at this time, so the dinner date was brought up once more, and it developed that if this date were not chosen a number of men, who were present, would not be able to be on hand. Consequently the date still remains the Saturday night before Easter. The matter of the class tree was discussed, and as it is in a flourishing condition, President Eaton volunteered, as a committee of one, to see what could be done in regard to transplanting it on the new site. The thirtieth anniversary of the class will occur in 1915, and there was an informal discussion in regard to the place of holding this reunion. The president appointed a committee in charge of the reunion as follows: Frazer, Schubmehl, White, R. H. Pierce, Little and Brown; the president is a member *ex-officio*.—Bob Richardson, who recently resigned as general manager of the Commonwealth Power Company of Kalamazoo, Michigan, sailed for Europe, June 9. Bob writes that he is taking the trip on a basis of 75 per cent. business and 25 per cent. pleasure. He will be gone the greater part of the summer.

The oft-recurring question—What has become of "Chip" Chapman—has at last been answered. From the day he left the Institute until May 25, no word has been received from him by any member of the class, but finally, in response to a letter from the secretary, we have received the following letter. Everybody will be pleased to know that Chapman is alive, well and prospering, and we live in hopes that sometime he will feel like coming North and taking in a reunion of the old class. Here is his letter:

I received your letter of May 16 asking if I was the W. A. Chapman, first lieutenant and adjutant of the Technology battalion, and answer that I am the "chap."

Your letter gave me a great deal of amusement, as I had imagined that I had passed out of the minds of all of my classmates. I have been receiving a number of Tech bulletins, etc., which have given me a great deal of pleasure. Upon leaving Boston in 1886 I came to New Mexico and was in fairly good circumstances. I went into the cattle business and lost every "blooming" cent. Walked into Raton with three other hobos, something like 250 miles north of where I lost my money, and started to work in the Harvey Eating House. Times were bad and what education I had received in Boston did very little for me, excepting my mathematics in counting ties from one station to another. After a short time I received the position as transit-man on a large survey, and began to climb up. I have only been off the blooming reservation a few times, and imagine I will stay here until I pass over the Great Divide. Have never been to Boston since 1886. Was, however, in Chicago in 1908, and made a trip to California and spent a month by the seashore. I met a great many eastern parties at the Knight Templars' Conclave in Denver this last summer where I held the position as aide to the Grand Marshal and had charge of the New Mexico division of Sir Knights. I am a member of the Grand Commandery of Sir Knights, also a member of the Grand Chapter, and the Grand Lodge. Having been made a Mason upon my arrival in New Mexico in 1886, you see I have had a chance to climb pretty high.

Was greatly distressed to receive notice of Oakes Ames' death, as Oakes and I visited considerably together in the east, I having visited him at his old home in Canton. I would dearly love to see some of our old classmates. I have the pleasure frequently to meet Sigma Chis as they pass through this town. Raton is a city of 4,800 inhabitants on the main line of the Santa Fé, and trains make quite a little stop here. Should any of the class of '85 pass through, I should be pleased, indeed, to go to the station to meet them, or should they have time to stop over, I would be pleased to take them over our wonderful scenic automobile road over the Raton Pass in my car.

I enclose a picture of myself and my boy, Manville, taken in front of the Brown Palace Hotel in Denver, and taken from the leading Denver paper at the time of the conclave. The little lad is nine years old, and he was the mascot for the New Mexico delegation. He has been drilling ever since he was two years old. He drilled for the moving pictures and the reel has been somewhat over the United States. I had the pleasure of introducing him to several members of the Grand Commandery of Massachusetts. I wish that some day the little fellow might be at Tech, but that is still a good ways ahead.

Now should any of my classmates desire any information as regards New Mexico, the Sunshine State, I will be very much pleased indeed, to answer any and all letters from them. I have been in or lived in a great many cities and towns in this state, and have held many positions in the state. Was adjutant to the Second Regiment of Calvary during the Indian troubles and served under Gov. Edmund J. Ross, who was at one time, as you will remember, senator of Kansas, and took a prominent part in the impeachment of Johnson. I was president of Territorial Educational Association for a number of years, and was county superintendent of schools in this county for eight years, so you see I have been before the public. I have always been so busy that I have never been able to get further than Chicago. At present I have a local insurance agency representing eighteen companies and writing all of the mining camps and big lumber concerns in this part of the country, besides the usual insurance line.

Winthrop Packard is Massachusetts agent for the National Society of Audubon Societies, with an office at 234 Berkeley street, the Natural History Building. Packard is doing splendid work in enlisting the interest of the people of the country in saving the wild birds of the United States.—Charlie Allen, who has been connected with the State Board of Education as agent for the supervision of industrial schools, has been advanced to the department for the training of industrial school teachers. In his new

position he will have large responsibilities in connection with measures now being undertaken for the training, in industrial schools already established, of a limited time, the experienced workmen to serve as industrial school teachers.—A few months ago when Arthur Little was in Pascagoula, Miss., he wrote a personal letter to a member of the class, which we shall take the liberty of printing, and take the consequences:

The name of this town sounds like an over-ripe banana, and this hotel smells like an over-ripe fish. I was landed here this afternoon about three, and have to wait until 12.30 tonight to get a train north. You can't imagine a more God-forsaken place. It used to be a lumber town, but the mill shut down, and the inhabitants are now living on each other and trying to make the fare out. The motorman-conductor and I have ridden to the beach and have become friends for life, since I told him it was the worst road I ever saw and gave him a chance to relieve his mind about the general manager. I was advised not to eat at the hotel, and since I have been here I couldn't, but I have found a Greek at the Café Olympia who says he knows where there is a fresh fish and who has promised to get some oysters from a fren' down street and to slice a tomato and fry some potatoes. With these and a bottle of White Rock which I got at the drug store, where they wouldn't sell me a drink because the Grand Jury was sitting, and a grapefruit, which I hope to get somewhere around town on my way to the Olympia, I expect to fare sumptuously. I wouldn't mention all these details if they weren't so darned important, especially in view of the fact that I lunched on two eggs at twenty cents a dozen at Laine.

Pascagoula is the Los Angeles of Mississippi. A sign next door says so. Not that I believe in signs. You can grow rich here watching pecan trees grow for eight years. Then the trees begin to get nutty, and you can move away. There were three other gentlemen about the stove, but they have inadvisedly gone in to supper, and I must away to Olympia. I hope the fruit store hasn't closed.

Fortunately I bought a copy of Rabelais in Chicago where they sell such books. Pascagoula is the place to read it.

—Dave Baker, who went to Australia a year and a half ago, is still there and is likely to remain for at least another year or two. The secretary recently received a letter from him, which will be of interest to every member of the class. We hope that other members, who enjoy his letter, will realize how much pleasure they can give to the class by sending news about themselves for the TECHNOLOGY REVIEW. Here is Dave's letter:

I was greatly shocked to hear of the death of Oakes Ames. The class has certainly lost a very loyal supporter, and I feel that I have suffered a personal loss, also. I am going to send a letter to Ed Dewson, in your care, which I hope you will forward to him, as I do not know his address.

I am always greatly interested in the class news published in the TECHNOLOGY REVIEW, but I feel that I have done very little toward furnishing any information to the class in this direction. I sailed from New York with my wife and daughter on the thirtieth of January, 1913, and had a most enjoyable trip on the way out to this country, stopping at Madeira, Gibraltar, Algiers, Monte Carlo (but I didn't lose very much), Alexandria, Cairo and at Port Said, taking the P. & O. steamer for Australia. I arrived in Melbourne on March 18 and on March 31 took up my residence in Newcastle. I am under contract here with the Broken Hill Proprietary Company, a very large silver and lead mining and smelting company, to design, erect and put in operation the first modern steel plant in Australia. This company has a very large deposit of high grade hematite ore, which they have been using as flux in their lead furnaces. It was the conception of the general manager of

this company to convert this very valuable deposit into a still more valuable asset by putting it into steel products so badly needed in this growing country. With this object in view, steps were taken to secure expert advice, and I was fortunate enough to be chosen for this work.

The plant, at first, will consist of one blast furnace of three hundred and fifty tons daily capacity, three sixty-five-ton open hearth furnaces and a blooming and rail mill, which, at present, will produce about four hundred tons of rails per day, but can, when supplied with sufficient steel ingots, produce two thousand tons of rails per day. Coke will be supplied by Semet-Solvay By-Product Ovens now under construction, the coal to be drawn from the Newcastle district, with a rail haulage of about twenty miles. Other mills will be added, as soon as the rail mill is started, to furnish galvanized steel roofing sheets. There is a very large demand for rails and galvanized corrugated sheets in this country.

I think I saw a letter from you, a touch, I might say, for an extra subscription this year, so I am enclosing a small check in answer to that appeal. I am afraid that I will not be able to meet with the boys next year for the thirtieth anniversary, but it will be my loss, and you can figure out how much your gain will be.

1887.

EDWARD G. THOMAS, *Sec.*, Boss Mfg. Co., Kewanee, Ill.

Gelett Burgess, writer and illustrator, and Miss Estelle Loomis, best known as an actress, were married Saturday, June 20, in the Unitarian Church of the Messiah, Park avenue and Thirty-fourth street, the Rev. John Haynes Holmes performing the ceremony. Owing to the recent death of the bride's mother, the ceremony was private, being attended only by Miss Constance Morgan and Burgess Johnson as next friends and witnesses. The wedded pair will sail today for France to live there a year.

In her stage career Miss Loomis became leading lady in Richard Mansfield's company, a position she held at the time of his death. She had important engagements afterward with E. H. Sothern and Viola Allen. Then she became a writer of stage sketches. Her recent occupation has been wholly literary, as contributor to the *Century* magazine and other publications. She is a daughter of Francis E. Loomis of Scranton, Pa. Burgess has probably decided that Methuselah was mistaken in some of his "maxims."

The Society for Electrical Development has engaged H. C. Spaulding to take charge of its news and advertising department. Mr. Spaulding is a graduate of the Massachusetts Institute of Technology, a member of the Technical Publicity Association, was formerly manager of the Thompson-Houston Company, afterwards manager of the electrical department of the Blake & Knowles Pump Company, and New England manager of Siemens & Halske Electric Company, assistant sales manager of the Triumph Electric Company and district manager of the Yale & Towne Manufacturing Company. Mr. Spaulding has had wide experience in publicity work and has been a frequent contributor to the technical papers. H. C. Plummer has been engaged by the society to assist Mr. Spaulding in his department. Mr. Plummer has had several years' training in active newspaper work and has been a writer on

engineering and technical subjects for technical papers, popular magazines and daily newspapers. He has made a specialty of presenting in popular form subjects of an academic character.

1888.

WILLIAM G. SNOW, *Sec.*, 24 Milk Street, Boston, Mass.

W. G. Besler has been made president of the Central Railroad of New Jersey.—George C. Scales, government engineer in charge of maintenance of the Georgia division of the Capital highway, is now located in and about Athens, Ga., where he has charge of about 400 miles of this highway.—Eleven members of the class dined at the Engineers Club June 9, adjourning to the Pops where they were joined by several other classmates.

The National Association of Cotton Manufacturers many years ago established what is known as the Association Medal, to be given to that person who, in the judgment of a committee appointed for the purpose, consisting of cotton manufacturers in various parts of the country, is considered worthy of the award. This year the committee, consisting of Messrs. WILLIAM M. BUTLER, Boston, Mass., *Chairman;* WILLIAM AMORY, Boston, Mass.; JAMES T. BROADBENT, Columbus, Ga.; JOHN P. CAMPBELL, New York Mills, N. Y.; STUART W. CRAMER, Charlotte, N. C.; CHARLES M. HOWARD, New York City, and WALTER E. PARKER, Lawrence, Mass., made the award to Mr. Arthur Tisdale Bradlee, of Chestnut Hill, Massachusetts, M. I. T., Class of '88, and the purpose of the award is stated in the inscription, which is as follows:

To
Arthur Tisdale Bradlee
Chestnut Hill, Mass.
For
Investigations upon the
Effects of Moisture
in Testing
Cotton Yarns and Fabrics
April 30, 1914

The medal is not limited to membership in the association.

The property at 133 Commonwealth avenue, Boston, consisting of a brick and stone house and over 3000 square feet of land, has been purchased by George C. Dempsey.

The *Boston Globe* of April 30 states, regarding Stone & Webster, that they now manage sixty-seven companies, the gross earnings of which in 1913 were $26,688,521. The aggregate capitalization is $186,515,400. The article states that the firm of Stone & Webster is not incorporated, being a partnership, but operating branches—the Stone & Webster Engineering Corp. Inc., constructing engineers and the Stone & Webster Management Assn., Inc.

The firm was organized a year after the graduation of the members from the Institute and started in business as consulting electrical engineers at 4 Post Office Square, Boston, in two small rooms, and now, with the allied corporation and association mentioned, occupy an entire eight-story building at 147 Milk Street, Boston, with several floors of two adjoining office buildings—about 600 officials and employees being in the home office. The most colossal enterprise of this firm is the Mississippi River Power Company, the object of which is the development of the enormous current flowing between Keokuk, Ia., and Hamilton, Ill., creating immense electrical power available for transmission to a large population in the centre of the Mississippi Valley. The present power house is 894 feet long, 125 feet wide and 177 feet high. Already 60,000 HP has been sold for ninety-nine years to St. Louis Public Service Corporations. This is the only very large water power development in the heart of the nation. The power is about half that of Niagara.

—In conferring the honorary degrees, at Harvard University, a few days ago, President Lowell stated:

"By virtue of authority conferred upon me by the two governing boards I now create master of arts,

Charles Augustus Stone, engineer by profession; manager of vast interests that serve the public; trustee of the Massachusetts Institute of Technology; a man with large views of large things."

—Sanford E. Thompson announces the addition to his staff of Mr. Kippelle Hall, who for the past fifteen years has been actively engaged in work of considerable magnitude in connection with the design and erection of reinforced concrete structures.

Word was only recently received of the death of John Stiles Ray who passed away January 18, 1913. He was a member of Alpha Theta Chapter, Sigma Chi fraternity. He is survived by a widow.

1889.

WALTER H. KILHAM, *Sec.*, 9 Park Street, Boston, Mass.

The secretary's special literary bureau provides the following abstract of the recent reunion proceedings. A fuller account with pictures will be published later.

The preparation for '89's Twenty-fifth reunion began in midwinter with the appointment of committees, and appointment of the work, and the perfect success of the reunion, and the entire absence of hitches is sufficient evidence that they were on the job. Hunt and Alley of the Finance committee accumulated enough capital to announce that the total expense to each member need not exceed the assessment of five dollars, plus railroad fares, thus bearing out the somewhat vague but entirely hopeful promises that had appeared in the three issues of the *Quarter-Centurion*, a publication conducted on a high plane by Wales with the sole ob-

ject of bringing out the class. Whiting, on accommodations, and Lewis, on transportation, handled these important branches so smoothly that no one could guess that they had really worked hard. After much search, our decision as to the location fell on the Hartford Yacht Club at Saybrook Point, Connecticut, and the details were arranged. The place has been described in the REVIEW in connection with the Twentieth reunion of '93 (Vol. XV, No. 8) so that it is unnecessary to add another description, but '89 agrees with '93 as to its entire suitability to our purposes in every way, and to the kindly courtesy and coöperation of the officers and members of the club. Thurber, Howard, Hunt, Lewis, Rollins, Kilham, Fiske, Estabrook, Alley, Williston and Brewer went down on the afternoon of the fourth to see that all was in readiness, and owing to one or two recalcitrants among the helpers, found plenty of work to do, but when the general arrival began, all was more serene, and, like the weather, which promised to be rotten, was absolutely perfect instead. Indeed, this advance party had even exterminated the mosquito! We never saw one. The New York and Western contingent arrived Friday noon: Ayer, Bixby, Davis, Deetz, Dunphe, Hawkins, L. E. Johnson, Latta, Mauran, Merrill, Mott, Orrok, Pike, Rankin, Sanborn and Truesdell. Other arrivals from time to time: Bosworth, Loring, Gleason, Stone, Duane, Marsh, Hollis, Power and Crabtree. '89's special car brought from Boston Eugene Peirce, W. S. Johnson, Kunhardt, Hall, Sauveur, Cutter, Underhill, Hobbs, White, Pearson, Whipple, Hart, E. V. French, Crane, Whiting, Hollis French, Parker and Wales;—and Borden joined at Providence. We also had a professional photographer, and pianist, whose good work provided pleasure for both present and future. Jimmy Cartwright boarded the train at New London, but, being a farmer, was afraid to enter our special. We found Lewis and Frank Pierce and several motors awaiting us, and all but five were taken on the first trip to the Point where the club launch completed the journey to the house. While we five waited, Frank Smythe turned up in his car, having driven from Buffalo, and soon one of the motor cars appeared and between the two we were all taken round the road direct to the club. There was general sorting out of men, baggage and beds, and then a short trip to see if the house was equipped with life saving apparatus. It was, not counting Billy Estabrook's fire protection work, apparently consisting of one rope and one garden hose. The extinguishers had gone astray somewhere up the line, but rats! what's the difference? Luncheon came next, noisy and festier, and to wind it up, Zenas Bliss and Nate Durfee came in on Zenas' power cruiser. They reported a dusty day on the ocean, and were promptly sprinkled. Next, baseball, with a lovely soft ball about the size of a small melon, and the proper keg at third base. A wonderful game, with the score still in doubt. Tennis and golf followed till everybody began to get hungry. It was

Parker Fiske's dinner, and what with phoney cocktails, the recitation of "Tige," songs, and general *divertissements*, it is only fair to say that "a general good time was had." Then Fiske showed a lot of old photographs of the class, the professors and various happenings, on the screen, which kept conversation and comment at a high speed. After that, a gradual bedding down occurred, lasting anywhere from then to breakfast, which took place a few minutes after the last man hit the hay. Saturday, a party went fishing and had a good sail, that's about all. The various sports kept others busy while Ned Marsh, Louie Latta and Laurie Mauran got some drum corps practice, which was followed by a general parade of the whole class. The class then put on some lovely costumes and put in some clam bake—it was *some bake*,—with Montgomery Rollins in charge of both. It wouldn't do to mention the animals in the bake, some would say they were not there! It then became necessary to try Smythe on a grave charge, and though Latta prosecuted the case with vigor, Smythe was acquitted and Latta condemned to be shot at sunrise. Another party went fishing (sailing) in the afternoon and others to the sports. Our only casualty took place in the baseball game this afternoon, when Frank Pierce broke his leg. We got a doctor, and Ayer and Williston took Pierce to Providence to the Rhode Island Hospital where several of our returning classmates had a chance to see him the next day, and found him plucky and cheerful as ever. Hollis French was in charge of the Saturday dinner, which was another general riot. There were presentations of medals "for valor" to several chairmen of committees, and of a silver bowl to the secretary, bearing an inscription in recognition of long and faithful service to the class. The recipients of the medals were Hart, Kilham, Whiting and Wales. Hollis had provided a sleight-of-hand artist who could easily have taken a rabbit from any of the open mouths around him, and Cartwright's speech on "Life on the Farm" brought tears to many an eye.

Frank Hart's souvenirs—handsome tobacco jars of shining pewter, and bearing the Institute seal in bronze, were highly appreciated. Singing of our old class songs, and a special new one by Wales, wound up the formalities, and then there was music, and drums, and music and gradually the overdue bedtime. Sunday came the general break up;—two automobile parties left in the morning, and Bliss' boat. One or two trolleyed away, and the rest went by train. '89's grateful appreciation went out in full measure to the noble hearts of the class of '90, who, of their kindly thoughtfulness, presented us with a barrel of souvenirs, each one in glass of exquisite design, and several for each man. Tuesday, the ninth, President Maclaurin was the guest of the class at dinner at the Harvard Club, and we all marched to the Pops, where we wore our costumes and took part as chronicled in the daily press. So ends the Twenty-fifth reunion of '89. There were sixty men

registered at the club house, and we can prove it by the class photograph which shows just sixty.

The sincere thanks of the class are due to the officers and members of the Hartford Yacht Club who so kindly allowed the use of their premises for the reunion.

The House Committee of the Hartford Yacht Club have very kindly extended the privileges of the club to the class of '89 for the season of 1914. It is hoped that a good many members of the class will avail themselves of this opportunity.

The secretary has on hand still a number of copies of the Second Book of '89, published five years ago. This rare edition is now practically out of print and is intrinsically worth to bibliophiles several times its original price. To prevent these copies from falling into the hands of speculators they are offered at three dollars ($3.00) each to close out. Send checks payable to Walter H. Kilham, secretary, and get a book before the supply is exhausted. The money thus obtained will be used toward the publication of the Third Book of '89 which will be a literary monument worthy of the Great Reunion. About twenty copies of each number of the *Centurion* remain in the hands of Wales and requests for same will be filled without charge as long as the supply lasts. Requests for these should be made to George C. Wales, 71 Kilby street, Boston.

—For the International Joint Commission on the pollution of the Great Lakes, George C. Whipple was selected, as one of three engineers, all Tech men. The other two were George W. Fuller, '90, and Earle B. Phelps, '99.

Continuing the series of Little Journeys to Homes of '89's Great Men, the following is contributed by Harry Hunt. The secretary solicits further contributions of like order:

"From 1892 to 1913, E. R. Conant was in the United States engineer's office, Savannah, Ga. He resigned his position as principal assistant engineer, southeastern district engineering department, on March 31, 1913, to accept a position as chief engineer of this city of Savannah. The office was created by the Council, March 5, 1913, and combines the duties previously fulfilled by the director of Public Works and the city engineer. He is also a member of the City Purchasing Board, and acts as purchasing officer for the board. His general duties, as prescribed by the City Ordinance, are as follows: Full control of the execution of all work to be done on the streets, lanes and roads; all land drainage work; sanitary and house drainage sewers; construction and repairs of docks, slips, certain city buildings, etc., and further has charge of all surveys for public works and of all lot surveys. This city requires surveys of all lots and street lines to be made by the city, for which a moderate charge is made against the property owners. Mr. Conant's annual report of work done during the fiscal year, ending December 31, 1913, shows a special study to have been made of modern methods of destroying the city's gar-

bage and refuse. There was constructed under his charge a modern high temperature incinerating plant, capable of destroying 130 tons of refuse daily. The plant is of the "Heenan" type, and is the only one constructed in the United States whereby all the steam generated by the evaporation of water, produced from the heat coming from the furnaces, is directly used for a commercial purpose in the water works plant. The method of construction will result in the saving of from $7,000 to $8,000 worth of fuel at the water works pumping station, where the steam is conveyed directly from the destructor plant. A special study was made during the first year's service of the best type of pavement suitable for Savannah, and as a result the city adopts for medium and light traffic asphalt block, which can be laid exclusive of grading and curbing for $1.65 per square yard. This is without a concrete foundation, but the nature of the natural soil, together with the method of laying the block, results in obtaining a satisfactory pavement that is durable and economical."

Charles E. Beals' address is changed from 207 Davis street, Evanston, Ill., to 49 Prospect street, Stoughton, Mass.

1890.

GEORGE L. GILMORE, *Sec.*, Lexington, Mass.

Mr. and Mrs. J. L. Batchelder, of "Edgemont," Seaver street, Brookline, gave a dinner dance on the evening of April 4 for a hundred or more young people at the state suite in the Copley-Plaza for the friends of their second daughter, Miss Rosamond Batchelder. Their elder daughter, Miss Sabra Batchelder, was one of the prominent debutantes of this year. Batchelder sailed for Europe on May 26 with his family and will return the latter part of June. His family plan to remain over a few months, and John will probably join them later in the fall.—Hayden was one of the subscribers to the Chinese fête held at the Copley-Hall April 24, and is one of the Tri-City Syndicates for the cup defender which is building the sloop *Defiance* at Bath, Maine.

In March, Knight C. Richmond, the well known mill engineer at Providence, gave an address to the East Side Improvement Association on the advantages of the new East Side subway.—H. P. Spaulding had an exhibition of his recent paintings of oil and water colors at his studio at the Studio Building, 110 Tremont street, Boston, Mass., March 24 to 26.—Among three American engineers selected for the International Joint Commission on the pollution of the Great Lakes, was George W. Fuller.

We have just received word from J. K. Noyes of Binghamton, N. Y., announcing that on June 3 he became the fond father of a young daughter, and congratulations are now in order.

We regret to learn of the death on March 27 at Nice, France, of pneumonia, of Ralph G. Brown. Ralph will be remembered as

major of our freshman battalion. Since leaving the Institute he has been manager of the Nanepashemet Hotel at Marblehead Neck, Mass.

Address changes

C. H. Brownell is now at the Navy Yard at Pensacola, Fla.—Elwood A. Emery is at 431 South Wabash Avenue, Chicago, Ill.—C. O. Churchill is at 28 Union Street, Westfield, Mass.—Samuel D. Flood is at 7 West Madison Street, Chicago, Ill.—C. H. Alden's address is, Office of Director of Works of the Panama Pacific Exposition, San Francisco, Calif.

1891.

HOWARD C. FORBES, *Sec.*, 88 Broad Street, Boston, Mass.

Alley and Douglass arranged the class dinner this year and gave us variety by going to the Boston Yacht Club on Rowe's Wharf. Twenty-nine were present, as follows: Alley, Bradlee, Bradley, Brand, Bunker, Capen, H. I. Cole, Daggett, Dana, Dart, Douglass, Fiske, Forbes, Garrison, F. C. Holmes, Kimball, A. N. Mansfield, F. F. Moore, Palmer, Punchard, C. A. Read, Ryder, Tyler, Valliant, Wason, G. H. Wetherbee, Wilder, F. A. Wilson, Young.

At the meeting, the president was authorized to appoint a committee to take care of the twenty-fifth anniversary in 1916, the annual dinner for next year, the question of publishing a class book, and to reorganize and subdivide the secretarial work. The committee as appointed by Alley is as follows:—Bradlee, Douglass, Garrison, A. N. Mansfield, Valliant, Wason, Wilder, F. A. Wilson, Young, the president, secretary and treasurer, *ex officio*.

The following item appeared in the *Boston Transcript* with regard to the death of Ralph G. Brown:

Ralph Galbraith Brown, whose death from heart failure following an attack of pneumonia, in Nice, France, is announced, was forty-five years of age and he had been a resident of Boston since early boyhood. In 1886 he was graduated from the English High School, where he was prominent in social and military affairs. He then studied mechanical and electrical engineering in the Massachusetts Institute of Technology. On the completion of his course he was connected for a number of years with the General Electric Company, being engaged in the installation of street railway and power plants in New York, Pennsylvania and Illinois.

Later, Mr. Brown became interested in the hotel business, an occupation for which he was particularly well fitted, and for many years he was widely known as the manager of the Nanepashemet Hotel at Marblehead Neck, long one of the best-known summer resorts on the North Shore.

Mr. Brown was an early member of the Boston Athletic Association and of the Corinthian Yacht Club at Marblehead and took an enthusiastic interest in the various activities of these organizations.

1892.

W. A. JOHNSTON, *Sec.*, Mass. Inst. of Tech., Boston, Mass.
C. H. CHASE, *Asst. Sec.*, Tufts College, Mass.

Humphrey H. Swift, Jr., manager of the export department of the Morse Twist Drill & Machine Company, New Bedford,

Mass., was found dead in his bed at the American House, Boston, June 4. Mr. Swift had been employed by the Morse Twist Drill & Machine Company for about fifteen years, and for the last few years had traveled extensively in Australia, New Zealand and South Africa, representing the new company. He was about forty-two years of age and unmarried. The REVIEW is in receipt of a most appreciative letter from the Morse Twist Drill & Machine Company through its treasurer, Mr. H. E. Cushman. His work was highly appreciated by them, and they feel his death deeply and regret it sincerely. He was quiet, and modest of his own ability, and was a man of the highest principles. He made friends wherever he went, and he will be very widely mourned.

1895.

WILLIAM H. WINKLEY, *Sec.*, 44 Kilby Street, Boston, Mass.

The annual meeting and dinner was held at the Boston City Club, June 9, 1914, at 6 p. m. with the following members present: E. F. Badger, Luther Conant, Jr., W. C. Brackett, R. R. Lawrence, C. H. Parker, W. D. Parker, G. A. Rockwell, R. J. Williams, W. S. Williams, D. B. Weston, W. H. Winkley.—H. K. Barrows was elected representative of the class, on the Council of the Alumni Association, in place of A. D. Fuller, resigned. After adjournment, the members attended the Pop Concert, and were joined there by A. D. Fuller, R. L. Fuller, F. S. V. Sias, Harry C. Whorf, H. D. Jackson and C. F. Adams.—Announcements have been received of the marriage of E. J. Loring to Miss Martha Louise Hale, and of Milton L. Fish to Miss Amelia Wale.—Walter N. Crafts, president of the Crucible Steel Forge Company, 5841 Carnegie Avenue S. E., Cleveland, Ohio, lectured before the Cleveland Engineering Society at its April meeting on "The Electric Furnace for Steel Making."—Francois E. Matthes, associate geologist of the United States Geological Survey, has been elected a corresponding member of the International Glacier Commission.

Thomas M. Lothrop writes:

About two years ago I started in business for myself along the lines mentioned in this letter head (Thomas M. Lothrop & Company, designers and specialists in efficiency equipment, 53 W. Jackson Boulevard, Chicago, Ill.), and am pleased to state that things have been coming pretty lively and I now have two or three helpers which are necessary in order to take care of the bright prospects and business which are developing in Chicago. I am a member of the Chicago Association of Commerce and, whenever you can get this way, shall be very glad to show you how we do business in this part of the country.

Charles D. Waterbury reporting on the doings of the class at the Chicago reunion says:

There were three '95 men listed in the 1914 Register of the North Western Association: Thomas Lothrop, W. F. Patten and Charles D. Waterbury; one other, J. C. Dickerman, has recently moved to Philadelphia. One out of town '95 man, John Dyer, of Albany, was here for the last day and one other, Charles E. Birge, of New York, tried to attend and succeeded in reaching town the Monday following.

The result was, our class reunited serially, was a "continued in our next" sort of affair in fact. Patten and Waterbury got together for the Friday afternoon excursions and Dyer and Waterbury for the banquet, and for the rest Waterbury was the only representative. But where was Lothrop? He was so busy corralling a big contract, he hardly took time to sleep, much less to attend banquets. Dickerman was so busy getting acquainted with his new job as director of the Bureau of Gas at Philadelphia, he didn't have time to come. While the showing of '95 was a sad thing, the reunion as a whole was anything but sad. Those who stayed away or who couldn't come missed a busy and bully time and one which makes all who attended look forward with pleasant anticipation to the one in Boston next year when I hope our class will make a far better showing than at Chicago.

The following address changes have been received: W. S. Williams, superintendent Pawtucket Branch, United States Finishing Company, Pawtucket, R. I.—Arthur L. Canfield, 31 Nassau St., New York City, N. Y.—E. M. Brown, M. D., 182 State St., Springfield, Mass.—S. H. Plum, 19 Clinton St., Newark, N. J.—B. J. Clergue, 137 McGill St., Montreal, Canada.—Luther Conant, Jr., Acton, Mass.

1896

CHARLES E. LOCKE, *Sec.*, Mass. Inst. of Tech., Boston, Mass.
J. ARNOLD ROCKWELL, *Asst. Sec.*, 24 Garden Street, Cambridge, Mass.

Seven '96 men turned up at the Pop concert at Symphony Hall, Tuesday, June 9: E. H. Robinson, Dr. J. A. Rockwell, R. E. Bakenhus, S. A. Wise, J. H. Knight, H. W. Hayward, and the secretary. Rockwell and Knight took part in the formal initiation of the class of 1914 into the ranks of the alumni.

The question of holding the anniversary '96 celebration next year instead of in 1916, which would be the formal twentieth anniversary, was discussed. The advantage of holding such a celebration next year would be that it would coincide with the big all-Technology reunion which is scheduled for Boston in 1915, and that many men would feel that they could come in 1915 but would not feel that they could come both in 1915 and in 1916. It is proposed to take up this matter for discussion during the summer and arrive at a final decision. Any members of the class who have views on the subject are invited to write to the secretary regarding it.

Charlie Morris called on the secretary on May 14. He is paymaster on the U. S. S. *Montana*, which had just returned from Mexico and was leaving for Portsmouth, New Hampshire, where it is now stationed.—The Chicago *Inter-Ocean* under the heading of "Our Birthdays" printed the following on April 28:—

Joseph Harrington, mechanical engineer, was born in Reading, Mass., on April 28, 1873; educated at the Massachusetts Institute of Technology; prospected and mined in Mexico in 1896–9; designed machinery in 1899–1900; became identified with the Green Engineering Company in 1900; has been secretary and chief engineer of same since 1907; inventor of devices for automatic stoking; is a Republican and a Unitarian; is a member of the Western Society of Engineers; recreation is billiards; resides at Riverside, Illinois.

—Professor A. W. Grabau has announced the publication of his new book on "Principles of Stratigraphy," the publishers being A. G. Sieler & Company, 1224 Amsterdam Avenue, New York City. Mrs. Grabau has been doing considerable lecturing around Boston during the past season.—James Eaton writes from the University of Vermont at Burlington, that he has been connected with the university in the department of mechanical engineering, ever since he left Technology. At present he is in charge of the shop work courses covering carpentry, wood turning, pattern making, foundry work, forging, chipping and filing, lathe work, and machine construction.—A. W. Thompson has left the Lowell Machine Shops, and is now associated with G. M. Parks Company, Fitchburg, Mass., this being the firm that manufactures Thompson's patent Turbo-Humidifier for cotton mills.—Charles Hyde wrote from the University of California on May 14, a short note to the secretary to the effect that he was hungry to see some of the old classmates, and expressed the hope that in 1915 he might be able to see a lot of the old members of the class out on the Coast.—Jim Melluish wrote March 30, from his office in Bloomington, Illinois, and sent a copy of the *Daily Bulletin* of the *Manufacturers' Record*, containing the main facts concerning the Florida project. This reclamation project involves the Poinsetta Park and the Peace Falls Farm Company, both of which are very favorably located in the Highland Lake region of Florida and are suited for winter residences, as well as for the growing of citrous fruits. Melluish says he will be very glad to welcome any of the boys who may happen to be in Florida in the vicinity of his work. The following details are appended:

Melluish & Broyhill, 222 Unity Building, Bloomington, Ill., engineers for Peace Creek Drainage District, advises as follows: District consists of 45,000 acres of muck land in upper reach of Peace Creek, which flows into Peace River and discharges into Charlotte Harbor, eighty miles south of Bartow; reclamation plan includes system of gravity drains, varying in size from bottom width of forty feet to eight feet; final surveys now being made; approximately 2,000,000 cubic yards excavation, consisting of twenty-eight miles main canal and several laterals; work suitable for floating dipper dredges and ready for letting probably about April 1; reclaimed land adapted for trucking and general farming.

—Myron L. Fuller, associated geological engineer, Pittsburgh, is engaged in the examination of the northern parts of Chili and Shensi provinces in China for petroleum for the Standard Oil Company.—Lucius Tyler has recently started in the manufacture of vacuum sweepers under the name Bantam Manufacturing Company, 34 Tudor street, Cambridge, Mass.

—The following is copied direct from the daily press, and indicates that Butler was not as immune against Cupid's attacks as his classmates had imagined:

Former Representative Butler Ames, long numbered among Massachusetts most eligible bachelors, married Miss Fifille Willis of Columbia, Mo., on June 25. The former representative is forty-three years old. He is interested in many

WILLIAM D. COOLIDGE, '96

local manufacturing companies. His bride, who is twenty-six years old, is said to be a member of a wealthy family. Colonel Ames has had an interesting career. Son of Major-General Adelbert Ames, and a grandson of the late Major-General Benjamin F. Butler, he was graduated from West Point in 1894, and later from the Massachusetts Institute of Technology.

—In talking with A. P. Underhill, the secretary learned that he is now associated with Bliss, general manager of the Lake Tahoe Railway and Transportation Company. He spends his summers at Tahoe, California, but in the winter time he generally gets on for a visit to his old home, 68 Monadnock street, Dorchester. He had the misfortune to hurt his foot during the winter which prevented him from getting his accustomed exercise, and added several pounds to his already sufficient weight.—Frank Guptill makes periodical visits to Boston, also. He is still associated with the Stone & Webster Corporation, and is as yet unmarried. At present his address is Berlin Construction Company, Berlin, Conn.

—"The Rumford medal of the American Academy of Arts and Sciences has been awarded to William David Coolidge, '96, assistant director of the research laboratory of the General Electric Company at Schenectady. The award was made for his invention of ductile tungsten and its application in the production of radiation. The world will recognize in Dr. Coolidge the producer of the tungsten lamp and, near the end of last year, the new X-ray lamp, which has greater penetrative power than the older, familiar form.

His invention here was a process whereby the metal tungsten could be made ductile and drawn into wire. Efforts were being made to find a filament better than the carbon loops in common use, and tungsten, osmium and other costly metals were under consideration. With tungsten the process of making the filament was at first the building up of a wire with grains of the metal cemented together by paraffin or other cohesive material. On passing the current through the lamp the paraffin was melted away and the grains of metal fused together into an irregular, lumpy thread.

Dr. Coolidge was able to perfect the process whereby the metal may be drawn into the fine wire threads now familiar on the little reel that is within the new pattern of the bulb.

The other striking invention of Dr. Coolidge was the adoption of tungsten for anode and cathode in the X-ray lamp. The result of this is a ray of greater penetrative power and one that may be regulated in power.

Heretofore the ray has been used practically altogether for medical purposes, but the Coolidge lamp will permit a greater range here and is also valuable for commercial uses. Heretofore the principal use in this line has been in the treatment of tobacco to kill the worm, but in its modified form it may even be used for the testing of metal for defects of blow-holes.

Dr. Coolidge is a Massachusetts boy, born in Hudson in 1873, with his B. S. from Technology in 1896 and a Ph. D. from Leipzig in 1899. Previous to going abroad he was one year assistant in physics at the Institute and again on his return, in 1899-1900. He remained at Technology till 1905, being successively instructor and research assistant in theoretical chemistry and physical chemistry and the last year was assistant professor of physico-chemical research. He was selected by Willis R. Whitney, director of the Schenectady laboratory, himself a Technology graduate of 1890 and Ph. D. also from Leipzig, for assistant in the General Electric Laboratory, where Dr. Coolidge became assistant director in 1908.

The Rumford medal fund was given during his lifetime by Benjamin Count Rumford, who was born at Woburn, and its interest is used in awards of money for research and for medals. The medals have been given at irregular intervals since 1839. Some of the recipients have been Ericson, for his heat engine; Clark, the telescope maker, of Cambridge; Corlis Rutherford of New York, for astronomical photography; Langley, Michelson, E. C. Pickering, Edison, Brush of Cleveland, George E. Hale, E. F. Nichols, now president of Dartmouth, for his work in pressure of light; Acheson, the inventor of carborundum; Curtis, of the steam turbine; James N. Crafts, sometime provisional president of Technology, for high temperature researches, and Ives, for his color photography."

The following address changes have been received:

Henry Gardner, B. & O. R. R., Mt. Claire, Baltimore, Md.—John D. Pardonner, Jefferson St., Dayton, Ohio.—F. Haskell Smith, Federal Rubber Company, Cudahy, Wis.—N. F. Rutherford, East Falmouth, Mass.—Ben Hurd, 463 West St., New York City.—Frank H. Rogers, Cambridge, Idaho.—Lieut. E. E. Mead, 311 California St., San Francisco, California.—F. F. Schaller, Safety & Appliance Division, Interstate Commerce Commission, Washington, D. C.—A. E. Smyser, 239 South Fairmount St., E. E., Pittsburgh, Pa.

1898.

A. A. BLANCHARD, *Sec.*, Mass. Inst. of Tech., Boston, Mass.

The following item is clipped from *Engineering and Contracting* of April 29:

Mr. Milan V. Ayres, recently appointed senior electrical engineer for the Eastern District, Division of Valuation, Interstate Commerce Commission with office in Washington, D. C., was born at Hamlin, Kansas, February 14, 1875. He graduated from the Electrical Department, Massachusetts Institute of Technology, in 1898. After graduation he entered the service of the General Electric Company at Schenectady, N. Y., being employed in the testing department and later in design of alternating current machinery. In 1902 he became electrical and mechanical engineer for the Boston and Worcester Street Railway Company, South Framingham, Mass., continuing in this position until July, 1911. From July, 1911, to November, 1911, he was assistant to general manager, Rockland Light and Power Company, Nyack, N. Y. November, 1911, he became chief engineer of the Mobile Light and Rail-

way Company, Mobile, Ala., resigning in 1912 to accept a position with Ford, Bacon and Davis, consulting engineers, New York City, in which position he continued until his recent appointment with the Interstate Commerce Commission. While employed with the Boston and Worcester Street Railway Company, Mr. Ayres took up the study of law and was admitted to the Massachusetts bar February, 1909. Mr. Ayres is a member of the American Institute of Electrical Engineers, the American Electrical Railway Association, and the American Statistical Association. For several years he was a member of the Publication Committee of the New England Street Railway Club and in 1911 of the Executive Committee of the New England Railroad Club; in 1910–1911, chairman of the Equipment Committee, American Electric Railway Engineering Association, and a member of the Executive Committee, Boston Section, American Institute Electrical Engineers.

On June 10, John W. Dodd was married at Wollaston, Mass., to Frances Effie Beckwith.—Prof. C.-E. A. Winslow will leave the College of the City of New York after this year to become director of the Division of Publicity and Education in the recently reorganized New York State Department of Health. Professor Winslow's headquarters will be at the New York City office of the State Department of Health, 25 W. 45th street. He will continue to act as curator of Public Health at the American Museum of Natural History and as associate in sanitary science at Teachers College, Columbia University.—The following men showed up at the dinner at the B. A. A. Clubhouse the evening of the Pops: Russ, Coburn, Seidensticker, Peavy, Curtis, Wadsworth, Perley, Chapin, Babson, Treat, Blanchard, Wing, McIntyre.—Russ is leaving the Baeder Adamson Company, with which he has been for a number of years, and establishing a business of his own in the line of hide cuttings and glue.—Coburn has moved his business to New York in order to keep in touch with more concerns who want dams built, but he hates New York to live in and manages to find excuses to get back to Boston very frequently.—Seidensticker is in St. John, N. B., where he has charge of a sugar refinery.—Wadsworth is just back from a six weeks' trip to England and the continent in the interests of the Gray & Davis Company.—McIntyre has now been established for about a year as an architect in New Bedford, Mass.

1899.

W. Malcolm Corse, *Sec.*, 106 Morris Avenue, Buffalo, N. Y.

The following article taken from *The Tech* of March 31, 1914, is of interest to '99 men. Swan is doing some very interesting and valuable work:

Several authorities on acoustics and methods of silencing noise indoors and out are at present engaged in an effort to devise some scientific method of silencing the roar of three giant 15,000 kilowatt turbine driven generators in the 201st street station of the United Electric Light & Power Company, New York. Professor Wallace C. Sabine, dean of the Graduate School of Applied Science at Harvard, is among those who are considering the problem. Because of the complaints of Washington Heights' property owners, the lighting company engaged a firm of engineers to make a thorough study of conditions and to try to find a remedy. This firm several

months ago was engaged to undertake the task of making soundproof a large room in the Cuyahoga County Court House in Cleveland, Ohio. C. M. Swan, a former Institute of Technology professor, and an associate of Professor Sabine, was in charge of the task, which was carried out successfully in the face of many obstacles.

The success of the Cleveland man led the electric lighting company to believe that it might be possible to kill the rumble of its huge generators. Because of the great speed at which the turbine driven generators are operated, it is necessary to keep a draught circulating through the generating room. Otherwise the air would become unbearably warm and the machines would be overheated. Two large doors in the front of the building are left open all night, and with the rush of air from the basement generating room, the roar of the generators is carried out into the night, disturbing the sleep of apartment dwellers a dozen blocks away.

Professor Sabine and Professor Swan have worked out an elaborate system which they think will do away with the sleep-disturbing roar in the future. They believed that the rush of air up from the basement carrying the sound of the generators through the open doors was a vital part of the problem. A system has been devised whereby the air from the basement will be conducted into a small well which will lead to the first floor. This well is to be equipped with partitions arranged close together after the fashion of the series of compartments in the Maxim silencer. These partitions are made of thin boards, which provide a substantial foundation for layer after layer of felt made of cattle hair. This felt is three inches thick. Professor Sabine's idea is that when the air rushes through the well to the first floor the sound will be killed and the grumble of the generators will be reduced to a minimum.

The 201st street power plant has been in operation only a few weeks. More than $6,000,000 was spent for the building and equipment.

The dates given in the class financial report in the April, 1914, number of the REVIEW were in error. They should be January 1, 1913, to January 1, 1914.—The following extract from a letter from G. B. Street is news from a far off land Casilla, 117, Taltal, Chile, and is all the more welcome on that account:

I have been down here since December on work for the duPont Powder Company and expect to be here until the end of the year. The principal objection to this part of the country is the lack of vegetation with the corresponding amount of dust and the scarcity of drinking water. In consequence nearly every one drinks more "booze" than is good for him.

—Earle B. Phelps was one of three American engineers, all Technology men, selected for the International Joint Commission on the pollution of the Great Lakes.

1900.

WILLIAM R. HURD, 2d. RICHARD WASTCOAT.
PERCY R. ZIEGLER.
INGERSOLL BOWDITCH, *Sec.*, 111 Devonshire Street, Boston, Mass.

Since the last class letter, no informal meetings have been held, owing to the inability of the secretary to arrange for one. Several plans were thought of, but were not put through. Next winter, the secretary hopes to arrange for more meetings.—A dinner was arranged at the Copley Square Hotel for those going to the Tech Pop concert, and Leary, Lawley, Wastcoat, Fitch and Bowditch attended. Lawley gave some interesting news about the cup

defenders and made the dinner a very interesting one. Fitch was unable to go to the concert. Cutting, Bugbee, Ziegler and Reardon were at the Pops, making eight in all. It was hoped that more of the fellows would have shown up, as last year there were nearly twenty. The stunts provided by the graduating class were fine and the evening was well spent.

The greatest event in the history of the class, which has happened for some time is Neall's engagement to Miss Martha Gray. This was announced in May and it is understood that their marriage will take place next autumn. It is hoped that Neall will invite the whole class to the wedding. Some of Neall's most intimate friends thought that something must be doing after he bought his place a year ago. There is nothing extraordinary in buying a place, but when a fellow spends so much time fitting it up and making it so attractive, it seems as if he were planning it for something more than a bachelor's home. He must be very busy getting it ready to live in, as nobody has seen or heard of him for a long time. The class of 1900 wishes him many congratulations.—Just to see how it was done, Neall acted as best man at Graff's wedding to Miss Gladys Livingston Olmstead. This took place at Longwood on June 4. Mr. and Mrs. Graff will live at 104 Strathmore road, Brighton, where they will greet their friends after October 1.—At the last meeting of the Alumni Council, Fitch was elected a member of the finance advisory committee to the undergraduate activities. Russell and Bugbee were elected members of a committee to advise the musical clubs.—Thurber writes that Fred Cooke is in charge of the Balboa terminal of the Panama Canal, including the dry dock, ship repair buildings, etc. He weighs 210 pounds which is pretty portly for a fellow of Fred's build. The Canal Zone must be very healthy to allow Fred to grow so fat.—Richardson reports that George Emery has been laid up with a bad cold and that both his wife and his mother have also been sick.

Ziegler very kindly offered to write this letter and had done a great deal of work getting material, but was unable to put it into shape. A few days ago his mother was run over by a train while she was on a visit to relatives in Maine, and her death was a great shock to her family. The secretary extends to Ziegler the warmest sympathy of the class in his great misfortune.

Tom Perry wrote Ziegler as follows:

I did have the pleasure of meeting quite a number of the fellows at the Technology clubs associated meeting in Chicago and we had a very pleasant time together. With three small children, including the new son, who was born on December 31, and whom his mother has christened "junior," and a summer cottage with its attendant attractions, and even without the aid of a balky automobile, I find plenty to do to keep me occupied. Incidently of course I am trying to make a bluff of keeping up my work in the office and we have been quite fortunate in nearly playing even this year with previous years. I am always running across Tech fellows and making pleasant acquaintances wherever I go in a business capacity and while they are not often from our class there is a bond of fellowship that makes the tie well worth while.

—Seaver, who always comes up with news whenever called on, sends this reply:

I have your gentle prod of May 28, and if you could know the temperature in Pittsburgh today you would realize that as a circular letter it is a marked success, as anything that will produce action at 100 in the shade must have considerable ginger.

I have not been doing anything that I know of worth writing, and merely circulating around the country like one of these water bugs that do an awful lot of kicking and never get anywhere in particular. Just at present I am putting a good deal of time on various committees, on the American Society for Testing Materials, the American Gas Institute and the Refractories Manufacturers' Association, with an attempt to enlighten the hitherto ignorant world on the subject of malleable iron. The more I think of it, the less I understand how, up to the present time, American manufacturers of malleable iron should have been able to turn out a product so satisfactory on the whole without the benefit of the vast fund of information which will be forthcoming in my book. Most people call it a bum pamphlet, but it seems to me that book or volume or something of that sort sounds better. What do you think?

Had a most interesting talk the other day with Leach, of 1900, who dropped in to talk over some furnace work. After a whole lot of urging, he finally discussed some of the work he has been doing, and although it may not have meant millions to himself, it has meant millions for other people. He has been pretty nearly killing himself in the process, but is in a whole lot better health now and is taking it a little easier. The more I talk with Tech men, the more credit I can't help feeling it to be that in some unforeseen way the gods got me through without many flunks. It is a bunch that makes a fellow glad to line up with.

—The following letter was received from Leonard:

I have just returned from a fishing and hunting trip on the West Coast and find your letter here.

Chase is the only '00 man that I see at all regularly and his company, Gaut & Chase are prospering. Chase has stopped drinking coffee and has gained 50 pounds, accordingly he recommends the same for thin people.

We have finished recently a six million Chicago Freight Terminal for the Soo Railway of which we are justly proud, having had the designing and construction. Our other work has been large but of a standard variety. Our New York office has been a pleasant success.

Bill Angus I see occasionally. He is busy erecting structural steel for bridges and buildings.

I am sorry not to have some real class news for you, but hope to have some day. Come in and see me when in town. Glad to see any of the 1900 men when they go through.

—As a contrast to the above letters the following takes the prize:

In response to yours of May 28, this is to advise that I have nothing to report.

The fellows don't realize to what trouble the class committee goes in order to get news for these class letters, and when a member receives an answer like the above, he feels like resigning on the spot. There are too many interests where his efforts are appreciated for him to waste his time with men so utterly devoid of class spirit. Every man written to should reply and tell something about himself even if it does not seem of much interest to him. The other fellows want to know at least that he is alive and takes some interest in class matters. The secretary would like to have members in the different parts of the country be re-

sponsible for news about classmates, and every three months send him what news they have. There are lots of fellows making good and they ought to be heard from. Of course they are too modest to write about themselves, so others must do it for them. Let every man answer every letter written him by the class committee, and keep the secretary informed about the members of the class.

1901.

ROBERT L. WILLIAMS, *Sec.*, 8 Lake Street, Brighton, Mass.

The annual dinner and business meeting of the class was held Tuesday evening, June 9, at the Copley Square Hotel, Boston. The dinner was excellent and the company could not have been better so the affair was most enjoyable. We were fortunate in having present three men from out of town, Pepperell from Providence, Moore from Chicago, and Stearns from Hartford, Conn.

The following officers were unanimously elected for the ensuing year:—President, Preston Player; vice-president, E. F. Brigham; secretary-treasurer, R. L. Williams; executive committee, M. C. Brush, J. F. Monaghan, W. S. Pepperell, B. E. Schlesinger.

After the dinner we adjourned to Tech night at the Pops and met other members of our class who were not able to attend the dinner. Your secretary assisted in the initiation of the class of 1914 to the alumni association by taking the part of a "philosopher" in the ceremony. His duties consisted of wearing a red robe, gray wig and beard, looking wise and saying nothing.

John R. Brownell, safety engineer for the Pennsylvania Steel Company, has recently resigned to assume the newly-created position of superintendent of safety for the State of California. His new duties are to carry out the provisions of the safety act in formulating safety rules and orders; in giving all possible expert advice on "safety first" matters to employers and employees and to manage the force of safety engineers and inspectors connected with the department. He also has the supervision of the Safety Museums in San Francisco and Los Angeles. With the exception of one year since leaving Tech, Brownell has been connected with the Pennsylvania Steel Company, the last three years being superintendent of safety.

L. E. Williams has severed his connection with the Great Lakes Dredge and Dock Company, at Cleveland, and is now manager of E. Jacques & Sons of Detroit.—L. D. Chandler, formerly with the Walworth Manufacturing Company of Boston is now a member of the firm of Rideout, Chandler & Joyce, steam engineer and piping contractors.—M. B. Foster must be a busy man as he is treasurer of the Fullerton Electric Company, treasurer of the M. B. Foster Electric Company, president and treasurer of the Shield Electric Company, vice-president of the Hardman Tire and Rubber Company, and a director of the Putnam Trust Company of

Greenwich, Conn.—H. C. Marcus is secretary-treasurer of A. W. Pike & Company, manufacturing agents and wholesale dealers in hardware and silverware, located at San Francisco. He writes:

> My hair is just starting to grey up; not the same happy-go-lucky as in 1901, but my heart is still very young.

He wants any '01 men in San Francisco in 1915 to be sure and look him up.—S. M. Spear is assistant engineer to the chief engineer of William Cramp & Sons, Philadelphia.—H. E. Dart is superintendent of the engineering department of the Hartford Steam Boiler Inspection and Insurance Company.—Frederick G. Clapp of the Associated Geological Engineers, Pittsburgh, is engaged in the examination of the northern parts of Chili and Shensi provinces in China for petroleum for the Standard Oil Company. He has been there all winter and is not expected back for several months.—M. C. Brush, vice-president of the Boston Elevated Railway Company, recently was the speaker at a meeting of the Harvard Improvement Association at its headquarters.—Edward Seaver, Jr., is back in Boston again. He is sales engineer representing the Falk Company of Milwaukee and the Wilson-Snyder Manufacturing Company of Pittsburgh. The Falk Company make helical gears and the Wilson-Snyder Manufacturing Company make reciprocating and centrifugal pumps.—A. W. Rowe is professor of chemistry, Boston University School of Medicine, and chemist for the Evans Memorial for clinical research. Last summer he spent two and one half months motoring through England.

1902.

J. H. Hunter, *Sec.*, 281 Park Street, West Roxbury, Mass.
J. Albert Robinson, *Asst. Sec.*, care Underwriters' Bureau of New England, 141 Milk Street, Boston Mass.

The annual meeting of the class was held at an informal dinner at the Engineers Club, Boston, preceding Tech Night at the Pops. The business session was very brief, the reading of reports was waived and President Stillings and Vice-Presidents Philbrick for Boston, Franklin for New York, and Lockett for Chicago, were re-elected by a blanket vote. Robinson was re-elected assistant secretary by one vote after the usual acrimonious contest over this office. There were present, Ames, Hall, Stillings, Sawyer, Pendergast, Sherman, Hunter, Shedd, Nickerson, Joe Philbrick, Irving Williams, Mahar, Walker, and Luke Collier. Arthur Jackson of Cincinnati joined the party before the dinner was over, it being the first '02 affair he has been able to attend for many years.

From the dinner, the class moved to the Pops where Patch and Ritchie joined the party. As in former years, there were a number of ladies as guests in the '02 reservation in the balcony, including Mesdames Pendergast, Nickerson, Stillings, Patch, Hunter, Phil-

brick and Miss Leslie Wetherston of Providence, whose engagement to Albert Haskell was announced this spring. The class was well represented in the initiation stunt that was pulled off on the stage. Pende and Adrian Sawyer were "councilors" and after being sufficiently disguised with heavy beards were allowed to sit right next to the "kink." The class secretary, in a black robe and long gray wig, occupied a humbler seat and tried to look wise.

The New York section held its annual dinner at the Hotel Lafayette, New York, on the evening of April 1. The affair was the largest ever held by the class in New York, the following classmates being present: Vice-President Franklin, Archie Gardner, Davis, Brainerd, Ned Baker, Bassett, Magrane, Manley, Grant Taylor, Seabury, "Bobbie" Pope, Place, Mathesius, Montgomery and Robinson. "Robbie" bore the greetings of the Boston section, which were warmly received and returned in kind. W. S. Babcock, '83, and "Alec" McKinn, '85, were the guests of the evening and their informal talks and reminiscences helped to make the evening a most enjoyable one for all.

Comparatively little general news has come in since the last REVIEW went to press.—Baker (James McF., not Ned) is with Guy Lowell, the noted architect, in his New York office. He requests that mail be sent to his residence, 1289 Dean street, Brooklyn.—Alsberg has left Colonel Bogart, with whom he has been associated several years and is with A. G. Zimmermann, architect, at East 24th street, New York City, but his mail address is at his residence, 319 West 95th street—Charlie Shedd is now with Stone & Webster, 147 Milk street, Boston.—Irving Williams has resigned his position with Brown & Sharpe of Providence and will shortly hang out his sign in the optical business in Boston.—Harry Saylor has been made editor-in-chief of *Country Life in America* and can be reached in care of its publishers, Messrs. Doubleday, Page & Company, Garden City, L. I.—Fruit is located with Grant & Chase, 759 Peoples Gas Building, Chicago, Ill.—Mather is engineer for the Porto Rico General Telephone Company, San Juan, Porto Rico.—Messinger has moved his offices to No. 170 Broad street, Providence.—Mardick has developed a new explosive which is as near "fool proof" as an explosive can be, and is now in Louisville, Ky., with the United Safety Powder Company (Stark Bld'g), which is to manufacture it. The powder cannot be exploded by impact.—McIntyre was married on April 1 to Miss Irene G. Howe of Oak Park, Ill., and has taken his bride to China. He has gone out to represent an electrical concern in that country and his headquarters will be at Shanghai, care of Andersen, Meyer & Co.

1903.

MYRON H. CLARK, *Sec.*, care Boston Rubber Shoe Company, Melrose, Mass.

R. H. NUTTER, *Asst. Sec.*, Box 272, Lynn, Mass.

S. K. Baker, associate member of Am. Soc. C. E., late assistant engineer United States Reclamation Service, announces that he is now associated with Mr. Howard S. Reed, associate member of Am. Soc. C. E., in the general practice of civil and sanitary engineering, and is available for consultation on all matters pertaining to the profession with special reference to the design and construction of irrigation systems, large and small; water supply and sewage disposal systems and all work of a similar nature, together with the field work connected therewith.—Baker's address is Suite 215, Noll Building, Phoenix, Arizona.—Ralph Howes did the construction work in connection with the re-fitting and rejuvenating of the club house of the New York Technology Club at 17 Gramercy Park. At the opening dinner, the club showed their appreciation by giving him a commemorative cup.

Address Changes

William J. Bay, 29 So. LaSalle Street, Chicago, Ill.—A. A. Blunt, 8 Washington Place, Braintree, Mass.—George H. Clark, Fontanet Court, Washington, D. C.—Ralph W. Eaton, Shore Line Elec. Ry. Co. Norwich, Conn.—William H. Evans, 37 W. Van-Buren Street, Chicago, Ill.—Adolph L. Fischer, 555 Sheridan Avenue, Detroit, Mich.—Paul Hansen, State Water Survey, Urbana, Ill.—Herbert A. G. Locke, 17 Tremont Place, Boston, Mass.—Henry A. Pemberton, 53 W. Jackson Boulevard, Chicago, Ill.—Ralph W. Tucker, 93 Gardner Street Allston, Mass.—Duncan Wemyss, Library Bureau, Ilion, N. Y.—G. F. Loughlin, U. S. Geographical Survey, Washington, D. C.

1904.

HENRY W. STEVENS, *Sec.*, 39 Boylston Street, Boston, Mass.

AMASA M. HOLCOMBE, *Asst. Sec.*, 510 Pine Street, St. Louis, Mo.

In opening the news for this issue, the secretary feels that he must offer a public apology to M. L. Emerson for neglecting to mention his name as being present at the alumni dinner last January. (As the secretary is a married man himself he knows how much explanation is sometimes needed, when your name is not included in the list of those present at the function you left home to attend.) As "Emmie" spent most of his time at the head table with the big men of the evening, he should not feel too harshly toward the poor scribe, who failed to drag him down to the level of the rest of us. While we are on the subject of Mert, let us make known the fact, that he has just been made the treasurer of the

American Pneumatic Service Company on which all classmates congratulate him.—It may not be generally known in the class, but evidently Ovington is not the only aviator whom we can boast of having in our membership, as the following clipping, dated New York, March 25, will testify:

Since the successful use of the aeroplane gun army aviators have wondered what would happen to them if a shot should plough through a machine while they were in flight. Haldeman Figyelmessy, the Hungarian aviator, who obtained his license to fly in Los Angeles, intends to find out. He has said that he would soar to a height of 3,000 feet over the lower bay in two weeks and jump from a machine with a "safety pack," an aerial life preserver on the order of the parachute, which can easily be attached to any machine.

Figyelmessy is a graduate of Zurich University, the University of Geneva and the Massachusetts Institute of Technology. He has a biplane at the aviation grounds at Oakwood Heights, S. I., which he will use. He made a short flight there yesterday, but came back to earth with the machine.

He volunteered that half of his interest in his proposed death-daring jump was "for the excitement of it." After he jumps, the machine will be left to take care of itself. If it dives into Davy Jones' locker he says he will be consoled by the fact that it has served the cause of aeronautical science.

Leo Stevens is arranging the experiment and intends to invite officers of the army to witness it.

The secretary has been unable to find out whether Figyelmessy made good his intention and attempted the experiment, or whether it ended successfully or otherwise, but it at least shows "'04" to be among the pioneers, in thinking about such things.—John W. Shaw, Course III, called on the secretary, in June and spent an afternoon swapping yarns of one kind and another. He was just finishing up his first vacation for a number of years, and was about to return to Cobalt, Ontario, where he is engaged in digging silver ore.—"Bill" Evans, after spending about a year in Boston, selling various kinds of steam traps, economizers and other things of like nature, has returned to New York, where he is selling the same things. If the secretary has made a mistake about Bill's line of goods, he is sorry and begs forgiveness.—David Elwell is now located in Boston, with Lockwood-Greene & Company.—C. H. Stebbins has severed his connection with the Hodgman Rubber Company of Tuckahoe, N. Y., and is now travelling for the Avery Chemical Company with headquarters in Boston.—Don Galusha joined the ranks of fathers on the seventh of last March, when his daughter, Mary Johnstone Galusha, was born.—The secretary reports two more of the class who have become benedicts. On December 17, 1913, "Cy" Ferris was married to Miss Gretchen Salfich, of Hartland, Wisconsin, and the following clipping from the *Brooklyn* (N. Y.) *Eagle* of April 16, 1914, discloses the name of the other bridegroom.

Miss Bessie Daniels Van Duesen, of 387 Union street, was married, yesterday, to Emmet Cockrill of Little Rock, Ark., a mechanical engineer and a graduate of Cornell, the Massachusetts Institute of Technology and the University of Arkansas. The ceremony was performed at the Old South Congregational Church.

—The engagement of Miss Elizabeth T. Polhemus, of Newton Centre, to "Tammy" Rockwood, was announced last winter, and the engagement of Miss Mason, of Baldwinsville, Mass., to Harry S. Kendall, has also been announced.—Robert Palmer, Course VI, paid a flying visit to the secretary one day in June. Palmer is connected with the General Electric Company at Schenectady, N. Y., in charge of some of their laboratories.—Selby Haar, Course VI, has recently compiled a valuable article, with many statistics, on electrical central stations of the world operating at 70,000 volts or above. The paper was printed in the *Electrical World* and was also read before the annual convention of the National Electric Light Association held at Philadelphia in June. The paper has attracted considerable attention in the electrical field and represents a large amount of careful and painstaking work on the part of the author.

The class was fairly well represented at the annual Tech night at the Pops on June 9, when the following '04 men turned out: Parker, "Mert" Emerson, L. H. Smith, Munster, Hiller, Wentworth, Ovington, Kendall, Milliken, Gunn, Rockwood, Galusha, Comstock, and Stevens. By selecting opportune moments, we managed to attract attention by giving our class yell. Ovington constructed several miniature aeroplanes, which he launched into the air, but their motive power was defective and their flights were of short duration.

Comstock's new class yell was also given once. This yell, which the author originated at the last annual alumni dinner, is as follows:

"Naught Four" pause—"That's all."

Some members of the class may note a similarity to an advertising phrase somewhat widely known, but Comstock stoutly maintains that he never heard of said advertising phrase. At the alumni dinner, this yell attracted considerable attention, but on the second rendition, some rude person ('03 or '05 suspected) loudly shouted, "That's enough," which detracted materially from the effect. At the Pops, "Blackie" was surrounded and induced to spend a few moments with us. He showed himself to be the same "Blackie" of ten years ago, remembering us all, and having an answer ready for every one. As usual, our class was represented officially by "Mert" Emerson who assisted nobly in the initiation of the members of the class of 1914 into the fold of the alumni. "Mert," clad in a beautiful lemon-hued court-costume, assisted by three other "huskies," brutally jammed the struggling unfortunates on to a table, while "Mercury" Litchfield dropped the seal on their backs. We all enjoyed ourselves immensely, and Ovington registered a vow to attend every forthcoming class affair which occurs within reasonable distance. The secretary hopes that his example will be followed by many more of the class.

In closing, the secretary reiterates his request for letters from everyone who reads the Review. Apparently, no one read the

last issue, as no mail matter has been received. Sit down and write him a few lines, telling what you are doing. It will interest your classmates, even if it doesn't seem very interesting to you, and the first letter received by your secretary will affect him much as does a spring of sparkling water (or a bottle of beer, as the taste may incline), a man on a long walk on a dusty road.

1905.

GROSVENOR D'W. MARCY, *Sec.*, 246 Summer Street, Boston, Mass.
CHARLES W. HAWKES, *Ass't Sec.* 29 Mellen Street, Dorchester, Mass.

This year's Tech night at the Pops was acknowledged by everybody to be a huge success. We had an informal dinner at the Nottingham, at 6 o'clock, where about twenty-six of us talked over stunts for the next reunion which will be our tenth year out. The following were at the dinner: John Ayer, Al Prescott, Doc Lewis, Bob Gardner, Fred Goldthwait, Wentworth, H. L. Whitney, Coffin, Atwood, Simmons, Steel, Hill, Landers, Rhodes, McLean, C. H. Johnson, C. W. Johnston, Hinckley, Marcy, Hawkes, Abbott, Senger, Ball, Bill Green, Buff and Kenway. About eight or ten other fellows showed up at the Pops, who were not able to get around to the dinner, and, if we all do our best, our tenth reunion will certainly be a record breaker.

Bill Green is now in Boston doing some research work at the 'Stute, and he acted as toastmaster at our dinner.—You will remember that George Jones wrote us in time for the last REVIEW that '05 took the awarded cup for the largest attendance at the Chicago reunion. His records showed twenty-one men in attendance, and we give the list of these men below:

F. F. Geraghty, E. C. Lowe, P. G. Hill, P. M. Smith, E. B. Snow, Jr., Mitchell Mackie, F. D. Webster, C. B. Mayer, F. E. Payne, George B. Jones, C. E. Rogers, Robert K. Clark. John H. Holliday, Jr., W. F. Becker, Robert S. Beard, Huntington Smith, C. E. Warren, Samuel A. Greeley, G. A. Hool, H. S. Percival, L. O. Hopkins.—In reply to our Boston dinner notice, Bob Lord, who is with the Ireson Tanning Company, Gorham, Maine, wrote us as follows:

> The one idea I have about the reunion for '05, is to go to camp, hotel or somewhere where we can get into condition for about three days before the reunion.

We don't know just what Bob means by "getting into condition," but his last paragraph is interesting and possibly enlightening:

> Would be glad to have the bunch at our place here, but a temperance state is no place for an '05 reunion.

Bob also suggests George Jones for publicity agent. We all second this motion, for the good work George did for us at Chicago. —Fletcher H. Burke is in Buffalo and writes as follows:

Sorry I cannot get to the reunion this year, but I have to stay here and take care of T. Green and Cowper.

—Max Cline has two boys, one, five and one half years old, and the other seven months. He is located in Glens Falls, New York, and expects to be on hand for the reunion next year.—Charlie Clapp is at the University of Arizona, and seems to be enjoying that part of the country immensely.—W. J. Sneeringer, Jr., has written the secretary the following letter, from Baltimore, Md. in reply to a request for information concerning himself:

Married Hettie Cole Caldwell on August 31, 1912. Boy born about 7 a. m. on September 28, 1913. Weighed 6½ lbs. and was said to be an O. K. kid. Having had no previous experience, I do not state this on my authority, am merely reporting what was said to me. My wife now finds he resembles me (may heaven help him) and I think he looks exactly like a baby. Your letter with regard to the tenth reunion started me thinking (an unusual occurrence) and I'm trying to dope out some way of getting there. You see, we went to Boston, by sea, on our wedding trip and if I could arrange to make the reunion chime in with a holiday, we could repeat the honeymoon, take in the reunion and have everyone happy. I presume some provision will be made to take care of the better fifty per cent. of the benedicts, won't there?

P. S. Forgot to tell you that the young hopeful is burdened as follows—W. J. Sneeringer, III. "W. J." stands for William James.

There will be ample provision for the "better fifty per cent.," and we shall certainly expect to see Sneeringer on hand. —Francis Drake, who is at Lynn, with the Lynn Gas & Electric Company, writes that Natalie Alice Drake arrived February 4, 1914, and is making her dad dance the tango in seventeen different styles. Hurrah for Drake!—Roy Allen is out of Mexico again, and is located at 64 North 9th street, Newark, N. J. Under date of April 22, Roy writes:

Bill Spaulding was down last week and spent a night and part of two days with us. He is the same old Bill.

—Charlie Johnston is in Boston, and his home address is 67 Perrin street, Roxbury. He is connected with the Grangers Lime and Marble Company, of West Stockbridge, Mass. This company is crushing a high grade marble into fine powder, and selling this to be used as lime on farms. Charlie is much interested in this work, and makes no end of claims as to the value of this company's product.—As already mentioned, Senger was at the dinner, and had some interesting stories to tell us regarding the conditions in Mexico.—The secretary has increased his family by one—Constance Marcy, being born May 11.—Norman Lombard writes, under date of April 17, that he frequently meets Doctor Pritchett, and has many cordial talks with him over old times. Norman's address is 811 First National Bank Bldg., San Francisco, Cal.—Miss Helen Paine and Waldso Turner were married Monday, June 1, at Sharon, Pa. Their address is 68 Warren Avenue, East, Detroit, Michigan.—Miss Frances Damon and Andrew Fisher, Jr., were married April 30, at Roxbury, Mass., and their address is 6 Copeland Place, Roxbury, Mass.—Miss Agnes Adams and Luther E.

Gilmore were married March 22, at Seymour, Conn. They will live in Pottstown, Pa.—The secretary has received an announcement of the arrival of Beatrice Fuller Smart, May 11, 1914.—Gorham Crosby has recently changed his business address to 61 Broadway, New York City. He is associated with Kenyon & Kenyon, counsellors-at-law.—Bob Turner has resigned as commissioner of labor, and Professor Selskar M. Gunn has been appointed a member of the Massachusetts State Board of Labor and Industries.—Arthur Amberg was at the Boston Business Show last April, and is apparently doing mighty well as eastern manager of the Amberg File and Index Company.—Scott C. Runnels sends us the following lines from Little Rock, Ark.:

At last out for myself. Have been down here a year practicing surgery. Am getting on swimmingly and like the country. Not many Tech men around here, however.

1906.

C. F. W. WETTERER, *Sec.*, 147 Milk Street, Boston, Mass.
JAMES W. KIDDER, *Asst. Sec.*, 50 Oliver Street, Boston, Mass.

Two 1906 men are among those of the instructing staff at the Institute who have been promoted during the past few months. John F. Norton, Course V, has been advanced to an assistant professor in chemistry of sanitation, and DeWitt M. Taylor, Course II, to the grade of instructor in mechanical engineering. —The *Boston Post* of April 28 contained an account of the marriage of Thomas B. Holmes, Course III, and Miss Ethel H. McFarland, as follows:

The announcement was made yesterday of the marriage of Miss Ethel H. McFarland, a granddaughter of Denman Thompson, of "Old Homestead" fame, and Thomas H. Holmes of Keene, N. H., which took place at the Hotel Puritan last Saturday evening. The couple left Boston Saturday night on an extended honeymoon. Upon their return they will remain in New England until the Mexican situation is cleared up when they will go to Mexico where Mr. Holmes owns extensive mining properties. Miss McFarland was attending Wheaton Seminary at Norton, when Holmes was a student at the Massachusetts Institute of Technology.

—The following letter was recently received from F. E. Dixon, Course V, whose address is now 14152 Euclid avenue, Cleveland, Ohio:

Have just been reading the REVIEW, and thought I'd "obey that impulse" and let you hear that I have thought of writing a number of times, without getting any further along than thinking of it. It is pretty easy to hear from the other fellows via the REVIEW, and then growl because more of them don't write, but when it comes to sitting down and sending a letter in to help out, it's another story. I haven't seen many '06 men since leaving Boston, but there is a live Technology Club in Cincinnati with active members starting with the class of '72 and coming down to date. Have just left Cincinnati for Cleveland and found Ned Rowe located here. Life with me has been uneventful, three squares a day and eight hours sleep, more or less. Left Boston in 1908 and held down a job with the Heekin Spice Company of Cincinnati until April of this year. Was working with them as chemist along pure food lines. Thinking five years a long enough period to hold down a job, I came to Cleveland with the Widlar Company as efficiency

manager. Don't know how long I am booked for this job. The line of merchandise is the same as that I have been monkeying with for five years, spices, teas and coffees, but the work I am doing is considerably different and much more interesting than laboratory work.

Have two girls in our family, Dorothy (three in September) and Eleanor (one in June). Not a record in quantity, but long on quality. If you don't believe it, come out and be introduced. Well, Wett, tell some of the rest of the crowd who, like myself, have not been heard from for six or seven years, to get busy and see if we cannot get in enough letters to make them issue an '06 supplement to the REVIEW.

—Robert S. Clark, Course XIII, address 1217 Mitchell street, Victoria, B. C., has also "obeyed that impulse" and sent in some news, as follows:

Since leaving New Kensington, Pa., in September, 1911, I have been in British Columbia, the first six months in Vancouver and the remainder of the time in Victoria, barring one month in 1912, when I made a trip to New Orleans.

Nearly all of my work here has been with one construction company or another, on various new concrete and steel frame buildings, among the number being the Union Bank, the Belmont House and the British Columbia Permanent Loan Company's building, the last being the highest office building in town. From last September until the first part of this month I was with the Sooke Water Supply (the new city waterworks) on the construction of the dam and headworks at Sooke Lake, where I put in all the concrete, about 2500 cubic yards in all—this quantity including some culverts and reinforced concrete trestles along the pipe line. My next work will begin in about a week, when I go with the Pacific Lock Joint Company of Seattle, the contractors for the twenty-seven miles of reinforced concrete pipe for the flow line from Sooke Lake to the storage reservoir. My position will be that of foreman in charge of the pipe fabricating plant at Milne's Landing, Cooper's Cove, B. C. Tech men in Victoria are not very numerous. In fact, for quite a long time I thought I was the only one, but within the last year I have found two others. One of them, who is not a graduate, but has the honor and distinction of having participated in the Tech Riot in 1904, is a draftsman with the Sooke Water Supply. His name is Dow. The other is Mitchell, '09, of Canavan and Mitchell, civil engineers.

—Samuel A. Greeley, Course XI, is with the Sanitary District of Chicago as assistant engineer, and is engaged in water supply, sewage disposal and refuse disposal work. Greeley writes that he has several jobs on his own account and would be glad to get in touch with any work in sanitary engineering.—Jorge Lage, Course II, has recently been in correspondence with H. V. O. Coes. Lage is president of a large navigation company engaged in coastwise trade with headquarters at Rio de Janeiro. He says that Brazil is going through a tremendous financial crisis and that nobody knows how it is going to end.—E. B. Pollister, Course I, who is with the Busch-Sulzer Bros.-Diesel Engine Company of St. Louis, has been made manager of their northwest sales division with headquarters in Minneapolis, the Plymouth Building. Pollister advises that as he is a stranger in the northwest he would like to get in touch with any Tech men in or about Minneapolis or St. Paul.—H. V. O. Coes, Course II, had an article in *The Iron Age* under date of February 5, entitled "Can Big Business Be Permanently Dissolved?" In this article Coes says that we should fully recognize the fact that the so-called trust or big business combina-

tion is an economical development; is the product of the times and has been made possible by such agents as the telephone, telegraph and railroad—by all those agents which tend to annihilate time and distance, and that instead of the present efforts to regulate big interests of the country, we need equitable, just, sane, and, in a certain sense, elastic regulation.—Juan Francisco Urquidi, Course I, is in Washington, D. C., as secretary of the "Confidential Agency" of the Mexican Constitutionalists.—There were fifteen 1906 men present at the Tech night Pops on June 9, as follows: Carter, Clarke, Coes, Dissel, Hallowell, Hollnagel, Johnson, Kasson, Kelley, Kerr, Monaghan, Mowry, Stephens, Tucker and Wetterer.

It is very difficult to obtain items for the class news which should appear in the REVIEW every quarter. The members of the class cannot expect these news items unless each one makes it his business to see that the "dope" reaches the secretary. Letters along the same lines as those published this month are desired, and also any changes in address, position, etc. Don't wait for the other fellow, start the ball rolling yourself.

1907.

BRYANT NICHOLS, *Sec.*, 10 Grand View Road, Chelsea, Mass.
HAROLD S. WONSON, *Asst. Sec.*, 354 Congress St., Boston, Mass.

From the Secretary's Desk

An informal dinner of the Boston bunch was held at the Engineers Club, Boston, on graduation day, June 9. The men present were Starkweather, Wonson, Lawrence Allen, L. L. Allen, Macomber, Allen Pope, E. P. Noyes, Moody, Robbins, John Mahar, Eugene Potter, Bob Rand, Lamont, Fred Morrill, Gilbert Small, Packard, Nichols. In addition to these men the new bursar of the Institute, Mr. Horace Ford, was on hand as our guest and as our fellow-member, for we have adopted him as our honorary member. After the dinner, Macomber made a few remarks, presenting Mr. Ford to the class, and then the men adjourned to Symphony Hall to attend Tech night at the Pops. Ralph Hudson and John Thomas, who were unable to attend the dinner, were present at the Pops.

FINANCIAL STATEMENT OF TREASURER.

Receipts.

On hand July 1, 1913	$108.03	
Received from dues	113.00	
Five-Year Books	16.00	
interest	3.19	
exchange	.80	
class dinner Dec. 13, 1913	22.00	
class dinner June 9, 1914	25.50	$288.52

Expenditures.

Postage	$27.51	
Expenses of class representative on Council	7.00	
Miscellaneous printing	2.25	
Printing class directories	23.50	
Class dinner, Dec. 13, 1913	23.00	
Class dinner, June 9, 1914 (guarantee of 20)	30.00	
Telegrams	1.36	
Wreath for Mr. Rand's funeral	10.00	
Flowers for Monahan's funeral	5.00	
M. I. T. Alumni Association, clerical work	20.70	$150.32
Cash on hand, June 10, 1914		138.20
		$288.52

A Few Notes About a Few Men

F. O. Adams has opened offices for the practice of architecture in the Citizens' Bank Building, Tampa, Florida.—C. W. Beam, 1013 Alleghany St., Jersey Shore, Pa.—John C. Bradley was married on April 9, 1914, at Whitewater, Wisconsin, to Miss Helen C. Humphrey. They are living at Fairlawn Manor, Waterbury, Conn.—Jim Barker, now a professor at the Institute, was married on April 13, 1914, to Miss Margaret Clark Rankin, daughter of the Rev. Isaac Ogden Rankin, editor of *The Congregationalist*, at Brookline, Mass. Jim met his bride on board ship during a trip to the Panama Canal last winter, and they were engaged before the voyage was completed.—L. R. Davis is with the Aurora Consolidated Company, at Aurora, Nevada.—John Frank is engaged to Miss Louise Bettman of Chicago. John writes, "I guess I shall play first base for the 'marrieds' at the ten-year reunion. The drinks are on me when I see any of the bunch."—R. F. Knight, 74 Central St., Hudson, Mass.—Tom Keeling is now with the Nashville Machine Company, Nashville, Tenn.—B. D. Johnson can be reached at 109 Luzerne Ave., Pittston, Pa.—C. R. Lamont has come East and is with Peter Gray & Sons, Inc., manufacturers of lanterns, Cambridge, Mass.—James G. Moore, still with the Trumbo Dredging Company, is now at Daytona, Fla.—E. C. Noyes, 5108 Harold Way, Los Angeles, Cal.—O. L. Peabody is at Norway, Maine.—Winslow Robinson is the father of Robert Winslow Robinson, born on April 19, 1914. His address is 103 Sisson Ave., Hartford, Conn.—Phelps Swett now has two sons, the second being born on May 23, 1914.—Gilbert Small of Waltham is the inventor of a circular slide rule, known as the "Small" Pocket Calculator, which he has recently put upon the market. This is a very clever and useful device, fully described in a booklet which Gilbert will be glad to send upon application. (This is not written at Gilbert's request.)—Adolph Zuest, 215 Shillita street, Cincinnati, Ohio.

1908.

RUDOLPH B. WEILER, *Sec.*, care The Sharples Separator Co., West Chester, Pa.
CHARLES W. WHITMORE, *Asst. Sec.*, 1553 Beacon Street, Brookline, Mass.

I. *On the part of the Secretaries*

ANNUAL DINNER

The sixth annual dinner was held at the Boston City Club, March 10 and was the usual success, and we are sorry for those who could have attended and didn't. The assistant secretary read the secretary's report which was unanimously accepted. The assistant secretary announced the appointment of Howard B. Luther to represent the class on the committee for the Rand memorial. A few informal meetings had already been held at which various memorials were proposed. The one in most favor at the present writing is a fireplace in the lounge room of the Walker memorial with an endowment to keep a fire in the same. The matter of increasing the price of the bi-monthly dinner to help pay for sending postals was discussed at length. The general opinion seemed to be that any increase would tend to reduce the attendance greatly. It was, therefore, decided not to increase the price. The meeting wound up with the usual bowling match which resulted in the married men handing out the usual defeat to the single men. (Note—the secretaries are married.) Those who attended were A. W. Heath, A. B. Appleton, P. H. Heimer, H. H. Damon, C. O. Brown, E. H. Newhall, P. A. Esten, Lincoln Mayo, P. Barrett, Carl H. Bangs, A. M. Cook, Wm. H. Toppan, Leslie B. Ellis, M. Ames, Langdon Coffin, Joseph Pope, W. Cary, LeSueur T. Collins, Howard B. Luther, C. W. Whitmore.

The twenty-sixth bi-monthly dinner held at the Boston City Club, May 12, was the usual success. The next dinner will be held in the form of an outing to Nantasket for annual Field Day on July 11, afternoon, and evening. There will be a ball game on the beach, swimming, etc., and a trip through Paragon Park. Detailed notices will be sent out later.—Your secretary attended the annual Field Day of the Technology Club of Philadelphia on June 6 at Woodbury, N. J. G. C. Lees and A. C. Merrill were the only other '08 men in attendance, but while we were not numerous, we carried off one event. Mrs. Lees won the potato race for ladies.

Matrimonial

Lee Loeb was married April 6 to Miss Belle Francis Schiffman at Washington, D. C.—The engagement is announced of Miss Margaret O. Edson, Wellesley '09, to R. C. Collins.

FINANCIAL STATEMENT, YEAR ENDING JUNE 1, 1914

Receipts

Bal. on hand June 1, 1913	$182.91
Refund from Alumni Association for part of expense of Potlatch Chantant	4.60
Refund from Treas. Reunion committee	16.45
Dues received	142.60
	$346.56

Expenditures

Potlatch Chantant deficit	$ 11.35	
Reunion expense paid by secretary	48.18	
Exchange	.35	
Paid to Alumni Association for mailing expense, postage, notices, printing, etc.	139.19	
Postage, telegrams, express	6.33	
Printing	3.50	
Class representative on Council	6.00	
Flowers for Mr. Rand's funeral	5.00	
Sundries	.10	
Balance on hand June 1, 1914	126.56	
		$346.56

The large amount expended for alumni office expense is due to the fact that it includes the cost of two annual letters, the one for 1913 and the one for 1914. These letters cost about $45 per issue. The number of remittances received so far is behind that of last year, but the amount received is more due to the effect of the statements sent out.

1909.

CARL W. GRAM, *Sec.*, care Walter Baker & Co., Ltd., Milton, Mass.

On the evening of April 14, at the alumni performance of Tech Show, a block of seventeen seats in the front row of the balcony was occupied by members of 1909. Seven or more of the fellows who didn't obtain seats with the bunch were scattered through the house, so we did not make quite as noticeable a gathering as possible. The show this year was exceptionally good and well attended, but they didn't have anything on our *Beautiful Boylston Blonde*, Charlie Belden, or the versatile *Scissors'* Allen.

The following fellows showed up at the Tech Pops on June 9: Bullard, Clifford, Crossley, "Bennie" Dow, "Jim" Finnie, Fellows, Gram, Gibbs, D. G. Haynes, E. S. Howe, Lynn Loomis, Paul Lord, Ken May, Ben Pepper, "Chill" Sharp, "Art" Shaw, and "Heinie" Spencer. The secretary took part in the ceremony of initiating the senior class into the alumni, and so did not get an opportunity to interview the fellows in detail. Judging from a few of Paul Lord's Mexican stories, Boston isn't so bad a climate, after all.—Bennie Dow is now with the Westinghouse Lamp Company, in competition with Jim Finnie of the Pettingell, Andrews Company. —Edward Howe is with the Massachusetts Employees Insurance Association.—Although Ben Pepper is now an old married man, this is the first public notice we have taken of his marriage on

April 5, 1913, to Miss Esther Barbour of Newton Centre. Ben is now living in Auburndale.—On April 25, announcement was received of the engagement of Miss Lillian Gertrude Smart of Roslindale, Mass., to George Truman Palmer of New York City. —Harry Whitaker was married on May 29 to Miss Grace Francis in All Souls' Church, New York City.—A card from Herb Stiebel, who is in Bingham Canyon, Utah, reads:

She arrived, yelling nine—, April 19th was the time, Ruth Elizabeth is her name, belonging to the class of fame.

—Announcement has just been received from Mr. and Mrs. Louis Gilbert Beers of the birth of Barbara Beers on May 28. "Lou" is located in Columbus, Ga.—We invite all 1909 men to sit down, when you finish reading this dope, and in like manner unburden your souls of a few recent items from your autobiography, as Ray Temple has done in the following letter:

I don't believe you have heard from me since I graduated, so maybe it's about time I came out of my shell and gave an account of myself. Right after graduation in July, 1909, I went to work as a draftsman for the C. H. Cowdrey Machine Works of Fitchburg, and spent three years there designing special machinery. Had a whack at everything from a hairpin bender to an automatic bobbin lathe. That was all right, but the attractions down around Boston were greater, so in June, 1912, I came back home and married Miss Marion F. Buck, Mt. Holyoke, '09. For a year I jumped around numerous Boston machinery concerns and finally landed, a year ago, with the Blanchard Machine Company in Cambridge. Mr. Winslow Blanchard, the president, is an M. I. T. man from Course II, '88, and Henry Spencer of our own class is his chief engineer. I am working on the design and testing ends of their oil engine. We have several in operation now in various parts of the world, but we are still making improvements which will make the engines cheaper to build and more economical to operate.

The most important thing that has happened to me recently is the arrival of a nine pound boy, Allan Buck Temple, on January 26 last. He spends most of his time admiring his fists and howling, but I have started him in the right direction by plotting a curve of his weight, week by week. He keeps well above the normal, so I hope he will be a candidate for M. I. T. sometime along a few years later.

—The following letter from J. W. Hathaway arrived just in time to go to press:

After a silence of nearly five years, I will come to life and give an account of myself. As I was one of those unfortunates who required five years to complete my course and six in which to get my diploma, I have been rather at a loss as to which class I really belonged. However since my work for the last two years was with '09, I feel that I am an '09 man, although the official records show me as enrolled with '10.

Before my thesis was completed, I obtained a position with the American Telephone and Telegraph Company of New York. I have been with them continuously since August first, 1909. My work has been more of an economic nature than electrical engineering. Our department forecasts the use of the telephone, the number of subscribers and the kind and amount of apparatus that it will be necessary to provide for a period of thirty years into the future. Studies of this nature have been made for all the large cities of the country. Each city has a study made every five years, so one overlaps another making a forecast that predicts, with considerable accuracy, what the necessary apparatus and expenditure of money, for a certain period, will be. While on this phase of the work, I spent about three years travelling around this fine country of ours. I am now permanently in the New

York office occupied with another branch of our work. This work is purely theoretical. Problems are continually arising concerning the advisability of adopting new methods or apparatus under certain given assumptions. It is our duty to examine into the facts and determine whether or not the adoption of method or apparatus will be a profitable venture.

On July 3, 1911, I was married to Sarah E. Vaughan of Somerville, Mass. On January 25, 1914, a daughter arrived by "Stork Express" and is now the chief item of interest in our family.

These few lines will tell you that I am still in the land of the living and that I have not forgotten our Alma Mater nor lost interest in either class or Institute affairs.

Address Changes

John R. Baldwin, 25 Baltimore Place, Altanta, Ga.—Dennison K. Bullens, 1218 Allengrove St., Frankford, Philadelphia, Pa.—John A. Christie, 47 Mercer St., Jersey City, N. J.—Herbert C. Cloudman, 792 Main St., Westbrook, Me.—Mitchell Daley, 266 Main St., Bingham Canyon, Utah.—Fred J. A. Doherty, 3 Mayfield St., Dorchester, Mass.—Francis J. Early, Underwriters' Labs., 207 E. Ohio St., Chicago, Ill.—Edward L. Edes, care of N. W. P. P., Eureka, Cal.—Lloyd C. Eddy, Jr., Barrington Centre, R. I.—Alan F. Edge, Waukegan, Ill.—Risdale Ellis, 723 Monadnock Bldg., Chicago, Ill.—George E. Hodsdon, 16 Chapel St., Gloucester, Mass.—Franklin L. Hunt, Charlottenburg, Berlin, Sybelstr. 6 Stelzer, Germany.—Frederick Jaeger, 149 Rector St., Perth Amboy, N. J.—Barry H. Jones, 5 Carroll St., Poughkeepsie, N. Y.—Robert M. Keeney, Baker Mines Co., Cornucopia, Ore.—Robert C. Latimer, Ambursen Hydraulic Constructing Company, 61 Broadway, New York, N. Y.—Joseph Matte, Jr., 270 McClellan Ave., Detroit, Mich.—A Frederick Menke, 303 Court House, Portland, Ore.—Arthur P. Morrill, 56 Fountain St., Haverhill, Mass.—George A. Morrison, 2208 Ave. G., Galveston, Texas.—Andrew O'Riordan, 21 Norie St., Lowell, Mass.—W. R. Reilly, 530 3rd East St., Salt Lake City, Utah—Rufus H. Savery, Marion, Mass.—Harold Schaffer, Main Road, Ronde Bosch, Cape Town, So. Africa.—J. H. Serra, 28 Warwick Road, Melrose Highlands, Mass.—F. H. Soderstrom, 12 Danville St., W. Roxbury, Mass.—Prof. Lockwood J. Towne, 114 Engineering Hall, Urbana, Ill.

1910.

JOHN M. FITZWATER, *Sec.*, Industry, N. Y.
G. BERGEN REYNOLDS, *Asst. Sec.*, 142 Highland Avenue, Somerville, Mass.

Members of 1910:

You are all asked, enjoined and behooved to get some sort of communication to me so that I can get you all located, and if that doesn't move you to action—wait until we get our editorial hands on you at the reunion in 1915! You wished something on me at our class dinner at the American House on the ides of June, 1910—I am glad that you did, but what is the use of

being glad when I can be gladder? You are none of you helpless and it would be so much more easy to let me know where you are hiding than it is for me to hunt so many of you down after repeated failures to find you out. All of you get mail sent to you regularly and the graduates and non-graduates, so far as we know your course, get reply cards every three months—they are all addressed back to the sender who is your course secretary—and it seems a task beyond your powers to write your name and address and drop that card in the mail. You are not the only one interested, for each of us wants to know where you are and what you are doing, regardless of whether or not you have paid class dues. Speaking of class dues; if there are any who have not yet paid dues to date and who wish to do so, send them to me at Industry, N. Y., and you will be properly credited for them on a nice little card index which I keep for that purpose—said card index not yet having been mutilated badly with numerical designs. If any who have paid dues wish me to send them a receipt other than their cancelled check, just tell me about it and the receipt will be sent.

The following letter dated April 10, comes from Otto R. Rietschlin, care Simonds Canada Law Co., Montreal:

Having arrived in this city to find that today, Good Friday, is a legal holiday, gives me an opportunity to answer a postal of yours received some ages ago. Seeing that information is what you are after, it might be just as well to begin where Class Day left off. My first job was to spend five months in Massena Springs, N. Y., on the Aluminum Company of America's new hydro-elective power plant construction. The progressiveness of that town was something appalling. . . . There were a number of houses where they used the bath tubs for coal bins. Your interior was called upon to subsist, or rather exist, on cabbage, turnips, lima beans and hash, and as for work, you didn't have to arrive on the job until 7 a. m. and they allowed you to leave at 6 p.m., Sundays and holidays included, all for a cash girl's maximum salary. This was necessary, of course, for a young engineer must have experience. How we did sometimes wish experience was good to eat. From Massena I went to Texas for sixteen months, spending six in Beeville as resident engineer for a sewer system, six in Cotulla as resident engineer on an Ambursen dam, two in Corpus Christi as assistant engineer on the preliminary surveys for an irrigation project and the remainder of the time broused about San Antonio. There I became acquainted with scorpions, tarantulas, centipedes, rattlesnakes and Mexicans, also hot cakes, corn bread, fried chicken and a slippery vegetable they call okra. Lots of good experience came in bunches and, taken altogether, that trip did more to ruin a good stomach, to cause a certain maiden to make me lose control of my blood pulsometer, and more than all, to instill a feeling of confidence in myself and work, than any other. It is one that has paid dividends one hundred fold. After returning to Boston, eight months with Lockwood, Greene Company gave me their methods and standards of reinforced concrete building design. Since then I have been with Charles T. Main (Tech. '76), who specializes in industrial plants and water power, and with him have worked both on design and construction, on garages, dye-houses, storehouses, packing plants, and textile mills. I shall be in Montreal until the middle of July as his representative on the construction of a new building for the Simonds Canada Saw Company. In conclusion, let me say that in getting around through the country one meets Tech men galore, those who are coming and those who have arrived. With all, the spirit is the same, nothing fazes them, they are willing to tackle things little or big and carry them to a finish. They are above all, proud of their Alma Mater and I am darn glad to be one of them.

—Lasley Lee, 506 Custom House, San Francisco, Calif.:

I have been appointed to take charge of the stream gauging work on the Hetch Hetchy project. This includes the precipitation and evaporation records also. It is a government appointment but is paid by the city of San Francisco. The Hetch Hetchy bill requires that the city shall establish and maintain stream gauging stations at all important points to the satisfaction of the Department of the Interior. We will go up there about May 1 and start our work. It will be very nice work and as healthy as can be imagined. The Hetch Hetchy Valley and Lake Eleanor are higher than the Yosemite Valley, which is twenty miles to the south, but the scenery is just as magnificent. We expect to maintain two camps, one on Lake Eleanor and the other in the Hetch Hetchy Valley.

If you ever come out this way, and want to spend the healthiest week of your life in the Sierras, just steal a saddle horse and come in and wrap yourself around some flapjacks and venison.

—Fernandez states that he has nearly finished his work in Tientsin and expects to return to the States this fall. He has been laid up with typhoid fever but is coming along all right, sends his regards to all the fellows and hopes to see them sometime this year.—

—Under date of April 5, 18 Burr Street, Jamaica Plain, Loren Downs, Jr., writes:

Am on the teaching staff of the Coöperative Engineering School, Boston Y. M. C. A., 316 Huntington Avenue, Boston. Do not see so many of the fellows as when I was down town here in Boston. Castelhun, VI, now has three daughters—he deserves more space than he gets in the REVIEW. Saw Conner, VI, and Kiley, VI, a short time back, also Rietschlin, I, who is just back from Canada.

—R. W. Brush, 3 Durham Street, Boston:

Am still with the Holtzer Cabot Electric Company on the production end. Will be there strong in 1915.

—Van Court Warren: 380 Pacific Electric Bldg., Los Angeles, Calif.:

You bet I am still in the class and don't forget it; have been so busy trying to chase that dollar each year for you that I forget to send it on. Have been representing Utah Coal Sales Agency, of Salt Lake City, Utah, in Southern California Territory, for the past year and a half. A fine company and good work, but cannot get cold enough weather. Ran across H. C. Faxon, of Phys. Lab. fame, on my trip today. He is city engineer of Colton, and doing well. We have a great bunch of Tech men out here and have weekly luncheons at the University Club.

—George L. Mylchreest, 106 Campfield Avenue, Hartford, Conn.:

I am still with Ford, Buck & Sheldon, Inc., consulting engineers, and am kept busy designing steel and reinforced concrete factory buildings with a few brick and wood structures now and then. We have just finished a revision of the building Code for the city of Hartford. It was some job! We are trying to have the building inspector appointed after competitive examinations and give him office during good behavior and thus take the office out of politics.

Here's to the Reunion, 1915!

—E. O. Christiansen has changed his address and is now at Waiahole, Oahu, T. H. In March he wrote as follows:

Left the government service December 1, 1913, to become superintendent construction, north division, Waiahole Water Company Project, on Oahu Island. The

opportunity for experience here has been excellent and I am enjoying the work very much. The first job I had after getting on this work was the erection of a 350 KW. hydro-electric plant to supply all power for construction work. The main difficulty was the transportation of the machinery to the site, otherwise the job was easy. Am using electric power entirely on the work, though I have two gas engines in reserve. Have a complete machine shop, very good compressors, blowers, so the work goes on merrily. The primary object of the project is to supply water for irrigation to the Oahu Plantation (sugar). The project consists of a main tunnel 14,443 feet through the Koolau Range, and side tunnels on the south and north sides of the range. There are about 20,000 feet of side tunnels on north division, the wet side of the island, where the water is picked up to be carried through main tunnel. We have considerable trouble in driving the main tunnel on account of the water; tunnel makes about 20 cusec. Had a Tech gathering at the University Club, Honolulu, on February 27, and the Tech Club of Hawaii was formally launched, but unfortunately I could not attend. Nothing else of exciting news that I know of, all the Tech men in the Islands are doing well.

—C. A. Schillens writes:

My story is very short. After graduating I took an N.S., in Course II and then came to the Lynn Turbine Department of the General Electric Company, and am now assistant engineer in that department. We have been developing high speed machinery turbines and centrifugal air compressors. I find the work very interesting.

—George S. Thomas writes:

I am employed in the scientific department of Cramps Ship Yard, engineering department; am married and have a little girl nearly two years old.

—V. T. H. Bien writes:

Yours of May 29 at hand, and was glad to hear from you. As you see I have dived in for myself, having made the break about three months ago. I started doing any sort of work in the nature of repairs and am now starting on small buildings, having just completed one and having orders for others. It is the greatest pleasure to be one's own boss. I do not know now just what this will develop into but just now I have all I can handle and if I can keep it up I have high hopes for the future. Geg was married today and my other pals, Lewis W. Waters and W. C. Wilson, '11, will follow suit shortly. Sorry I can't report progress myself. Trust you have fared better. Saw Robert at New York ship in March. Is working hard and seems to be prospering.

—Gordon G. Holbrook writes:

Believe me, I was glad to hear a yelp from you yesterday and find you are still on the planet. I saw "Mousehair" Chapman the other day and he is assistant professor of mechanical engineering at the University of Maine, but not a word have I heard from the other "Nasal Artichokes" of 1910 as Ragsdale called them. I stayed at the Institute for two years after graduation and came up to Bath in June, 1912. They have surely treated me white here and after working a year in the jobbing and repair end, I began estimating and now am doing the estimating and calculations for the hull and engine departments. It is good experience and interesting work. In the winter of 1913 I started a night school for draftsmen and it has grown so that this past winter I was the principal of an evening school of almost two hundred and fifty students, with twelve teachers, and subjects ranging from mechanical drawing and mathematics, to sewing and cooking. It is pretty hard work, though, to teach three nights a week after working all day, but I can't seem to break away from it.

Last June I was married to Miss Marjorie B. Ellis of Cambridge and am settled down keeping house and trying to reduce the H. C. of L. by cultivating a garden the size of an undersized postage stamp.

This having a home of your own is great business, Chape, and if you haven't fallen for D. Cupid yet, take my advice and make tracks. Bath isn't such a bad village for being so far away from the Hub, but I don't expect to live and die here. Drop me a line when you can and punch some breeze about yourself.

P. S. Just keep your lamps on the *Defiance* if you want to see the winner of the America's cup. She is a nice piece of work.

On Tuesday, June 9, the class held a dinner at the Hotel Westminster. Although only about fifteen were present, the occasion was a very pleasant one. Cox and Manson volunteered to act as comedians and furnished an exceedingly funny entertainment. After dinner everyone adjourned to the Pops in Symphony Hall where those who were unable to be present at the dinner had gathered. In all, the class had about twenty-five present. The Pops were the best ever. The initiation of the class of 1914 proved a "wonderful production" and added great interest to the occasion. A card has been received, stating that Mr. and Mrs. Herbert S. Gott will be at home at 2126 Dorchester Road, Brooklyn, N. Y., after June 1, 1914.—Lawrence Todd Hemmenway was married to Alice Hunnewell on Wednesday, May 27, at the Third Universalist Church, Cambridge, Mass. A reception was held immediately after the wedding at twenty-three Milton Street, W., Somerville, at which many members of the class were present.—Gegenheimer writes:

Absence of news from me may be explained by the fact that I expect to polymerize matrimonially on June 3,—we will be at home after July 1, at 598 Lexington Street, Waltham. Waters tells me he is to leave the bunch at the Institute Bug Department for another bunch—of bananas—he will go to Costa Rica the middle of June to work under Professor Prescott, investigating the ills that afflict bananas in the making, on the plantations of the United Fruit Company.

—Horace V. S. Taylor, 3503 Simen Avenue, N. S., Pittsburgh, Pa., writes:

With Westinghouse Electrical & Manufacturing Company as electrical engineer, —specialty, automobile equipment. Haven't an auto myself yet, but have reached the motor cycle stage. Enjoy the monthly Tech reunions of Pittsburgh very much.

—Congratulations are in order to George S. Humphrey who writes the good news from Salt Lake that he has added one to the male population last February 1. He is still with the Utah Power & Light Company as distribution engineer.—Loren N. Downs, Jr., 18 Burr Street, Jamaica Plain, Mass:

Engaged to Miss Dorothy A. Busby of Jamaica Plain, Mass. That's all—for the present time.

—Edward S. Howe, Massachusetts Employees' Insurance Association, 84 State Street, Boston:

I have lately taken a new position, as Inspector and Safety Engineer for the Massachusetts Employees Insurance Association. The work is very agreeable. I specialize electrial work. Crossley, '09, Hale, '10, and Walker, '11, are in the same office.

—George W. McRae, 15 Dey Street, New York City:

With the Traffic Department of the American Telephone & Telegraph Company since graduation. Married? Yes. A couple of years ago. No other news and I refuse to gossip.

—George Conner Pettingell Andrews Company, Boston:

Still creating a demand for Peerless Mazda Lamps. Seems good to be back in Boston again. Am always glad to see any of the bunch. Tell them to drop 'round.

—Stanley M. Smith, Box 996, Halifax, N. S:

I am now with the Canadian Westinghouse in the Maritime Provinces with headquarters here. See a lot of Albert J. Barnes, VI, '09, of the Telephone Company here.

—George T. Southgate, 71 Broadway, New York City, care of Electric Bond & Share Company:

On very interesting high tension work and general hydro-elective work. Have been here a little over a year.

—Lewis S. Southwick, Altoona Northern Railroad, Altoona, Pa., is still electrical engineer with the A. H. R. R.—H. E. Beebe is climbing the rungs of the banking ladder and is now vice-president of the Bank of Ipswich, North Dakota:

Safely married, yet. The thorough, analytical methods impressed on me in my year and a half at Technology have been of great value in my present work. There are fundamental lines of attack on success in all professions and any occupation can be made a profession—no jollying.

—Albert K. Huckins, 6 Wilber Street, Dorchester, Mass., another engineer financier:

Still selling commercial paper, like the work, etc., and can only say that things are progressing smoothly and satisfactorily and hope that all good friends in 1910 are well and happy.

—Allen Gould is still with Peerless Motor Car Company:

At writing am just on eve of departure on unexpected piece of vacation for a week, which I plan to use to good advantage in looking up friends and family around New York and Boston. Cleveland as fine a place as ever and Tech population steadily growing in numbers and activity.

—Miss Jessie McKechnie Howe, of Canandaigua, N. Y., announced her engagement to Harold E. Akealy on June 5, 1914.—Miss Elizabeth Braley, of Concord, Mass., also announced her engagement to Fred A. Dewey. Miss Braley is a senior at Bryn Mawr where Dewey is teaching.

—Otis S. Smith writes from 1142 Ingraham street, Los Angeles, Cal.:—

In response to your card I am sending you my address which is about all I have to send.

Work is very quiet here and has been so for a long time. I came here last October and have been working, off and on, for Koebig & Koebig of this city. Many

are out of work here, and those who occasionally get a chance to go out on temporary jobs are compelled to work for wages that would disgrace a coal heaver to accept. So far as I am concerned, myself, I would return east, at once, but those with whom I correspond report that the chances for employment are pretty slim there too.

Of course, you remember Jim Trip? Saw him a short time ago. He is sales engineer for the Herringbone Metal Lath Company, 447–449 E. Third Street, Los Angeles, Cal.

This is a fine place to live provided one did not need to work for a living. The climate is all that is claimed for it. What this region seems to lack is manufacturing enterprises.

—J. Lodge, 50 Willow street, Brooklyn, N. Y.:

Am working in Jacobs & Davies, Inc., on reconstruction of the Centre Street Loop subway in New York City and expect to be at it some time. Media, Pa., is my permanent address and always gets me. Not maimed or engaged or otherwise afflicted as yet.

—R. A. Smead, 199 Hamilton street, Albany, N. Y.:

Am working for the same firm, Ford, Buck, and Sheldon, Inc., of Hartford, on the design and superintendence of a five-story concrete warehouse at present. Since arriving in this city I have seen Parsons and understand there are a good number of M.I.T. men in this vicinity.

—G. W. Bowers, 359 Westford street, Lowell, Mass.:

Spent about one and a half years in Jacksonville, Fla., as assistant engineer in sewer department and have just finished a water supply in Chelmsford, Mass.

—Abbott Allen, Westinghouse, Church, Kerr & Company, 37 Wall street, New York City:

It seems good to get back to civilization after living eight months in Canada.—

—H. F. Parsons, 100 State street, Albany, N. Y.:

Am still located in Albany. Saw Smead the other day and he says he is to be here a year in connection with the erection of a concrete warehouse. Things are going along the same with me and from present indications will continue to do so, unless they need the Tech battalion in Mexico. If any of the fellows know of a town that needs a county engineer on sanitary work, why just let me know.

—Curtis C. Webb is now in the employ of the Morococha Mining Company at Morococha, Peru, South America, where he expects to remain for two years.—J. M. Fitzwater, Romulus, N. Y., has new state contract for 7½ miles of water-bound macadam road in Monroe County from West Henrietta to West Rush.—Philip D. Terry, Y. M. C. A., Ithaca, N. Y., has leased Lyceum Theatre for summer for moving pictures. Home address, Waterville, N. Y. —W. R. France is in Toledo, Ohio, and writes as follows:

I noticed in a recent issue of the Tech Review that I am numbered among the "Lost." Mail address care of The France Stone Company at Toledo, Ohio, will reach me without delay.

—Gorton James, 145 High street, Naugatuck, Conn.:

Am working for Rubber Regenerating Company. No news to give beyond that.

J. B. Babcock, 822 New Birks Building, Montreal, Canada:

Still at the Howe office of the Ambursen Hydraulic Construction Company of Canada. O. Rietschlin is in Montreal for Charles T. Main of Boston. Abb Allen came through Montreal yesterday from British Columbia, bound for New York. He is with Westinghouse, Church, Kerr. Technology Club of Lower Canada had a banquet at Montreal, March 6, 1914. A. Allen and I the only '10 men there.

A. W. Andrews, care of Ontario Power Company, Niagara Falls, N. Y.:

Now hydraulic designer on extension of present hydro-electric plant. Married November 20, 1912, to Miss Evelyn Ferngross of Niagara Falls, Ontario.

—C. R. Benton, care of New England Telephone and Telegraph Company, 50 Oliver street, Boston, Mass.:

Still in Boston. Nothing especially exciting or even interesting to relate. In a recent letter from Parsons, he says he has sent to Washington for a copy of drill regulations. Nothing like being prepared in case of war in Mexico. Would like to have attended the big time in Chicago. Haven't seen many of the fellows lately. Was at the Engineers Club come time ago with Johnny Wentworth—annual meeting of the Sanitary Section of the Boston Society of Civil Engineers. Ted Joy and Kenneth Armstrong were there. Ted is with the Board of Health, I believe, and, at that time, Armstrong was in business for himself. Had an office here in town. I run into Black once in a while. Am afraid he is going to the bad—says he has taken up the new dances. Saw Sutherland the other day. Has taken Bradbury's place at the 'Stute.

—R. G. Tyler, Austin, Texas:

No news except that since this trouble with Mexico, here in Texas the excitement has been "in-tents." The natives in these parts believe our M.I.T. recognition buttons are "barber" emblems. At present assistant city engineer of Austin, Texas, in paving and storm sewer work.

—Austin B. Mason, 89 State street, Boston, Mass.:

From October to April 1, I have been working on the new Tech buildings in Cambridge under Stone & Webster, and now have left them and am in for myself with two others, office at 89 State street. Expect to take up any kind of engineering that comes along. So far, I like it very much and expect to like it more as soon as I can gather in enough business to keep me really busy.

—F. J. Pitcher, 893 Main street, Malden, Mass., announces the birth of a son on April 25. Congratulations!

—John Avery, 45 Perkins street, West Newton, Mass.:

Still doing business at the old stand and everything quiet with no news.

—Rafael J. Torralbas, 75 E. Palma, Vebora, Havana, Cuba:

I am so far South that I can not easily go to Boston as I would like to. I think New Tech is going to be the best engineering school in the world, and all foreigners, looking for such, should choose it. I am working for the city water supply in order to get the "supply" for myself through my hydraulics learned at Tech.

—Mr. and Mrs. Wallace Rhodes announced the marriage of their daughter, Miss Hazel Ayer, to Holman I. Pearl on May 5. The wedding took place in Brookline, Mass. Mr. and Mrs. Pearl are

at home after June 1, at Birchwood, Wisconsin.—George F. Maglott, XI, 508 W. 178th street, New York City:

I left the sanitary district of Chicago last year to build a sewage disposal plant at Harrison, N. Y., for the contractor. Am at present with Professor Winslow making a sanitary survey of one of the down-town office buildings, with particular reference to ventilation. In fact, just at the present moment, I am trying to fill George T. Palmer's ('09) place with the New York State Commission on ventilation. Palmer very recently lost his appendix and is now becoming accustomed to doing without it; doing famously at it, too. I suppose I ought to take this opportunity to make belated announcement of the marriage of Miss Lucile Miller, daughter of Mr. and Mrs. Henry F. Miller, of 746 Pensacola Avenue, Chicago, Ill., to yours truly. The happy event occurred on March 23, 1912, and I dutifully confessed by sending Bergen Reynolds an announcement but it must have miscarried as I have not heard from it since. I chanced across Skinny (familiarly known as Lawrence G.) Rice the other day on a New Haven train. He is living in New Rochelle, is married and just beginning to keep house, and he doesn't look any more like a family man than he did six years ago. He is working at a job he likes with Lederle & Provest, consulting sanitary engineers, this city. He's the only '10 man I've seen in several years. I hear from Johnny O'Neill not oftener than once in a while; he is sanitary engineer for the Louisiana State Board of Health with headquarters at New Orleans. Johnny is well able to talk for himself, so I'll say no more of him.

—Mrs. Anne Spangler Clark announces the approaching marriage of her daughter, Phyllis Helen, to Mr. William McNair Schofield, on Tuesday, June 30, at 12.00 o'clock noon, 1914, Northfork, West Virginia. At home after the 15th of August, Northfork, West Virginia.—Rev. Dr. and Mrs. Lyman Mevis of Dennison avenue, Pittsburgh, have announced the engagement of their daughter, Miss Gertrude Alcliffe Mevis, to Stuart L. Henderson of Wilkinsburg, Pa., formerly of Boston. Miss Mevis is a Wellesley graduate.—Announcement has been made of the marriage of Miss Ellen Honora O'Brien of Dorchester on June 1, 1914, to H. R. Perry.

Address Changes

L. M. Adler, 1033 First National Bank Bldg., Birmingham, Ala.—Frank A. Baker, 74 Clement Ave. West Roxbury, Mass.—Guy W. Bolte, Winnetka, Ill.—Chester J. Briggs, 711 Mills Bldg., El Paso, Texas.—Robert E. Dillon, 39 Boylston St., Boston Mass., Walter R. Dray, 3429 Michigan Ave., Chicago, Ill.—Leander A. Dow, 46 Todd Block, Great Falls, Mont.—Ridgway M. Gillis, Toledo, Wash.—Ralph H. Hannaford, 4 E. 39th St., New York, N. Y.—Edward S. Howe, Mass. Employees Ins. Ass'n, 84 State St., Boston, Mass.—Reginald D. Johnson, 1050 So. Madison St., Pasadena, Cal.—Max C. Sherman, 242 Broding Ave., Ben Avon, Pa.—L. S. Southwick, Altoona, Pa.—Curtis C. Webb, 36th Floor, Woolworth Bldg. New York City.—Chester W. Wilson, Dolphin Jute Mills, Paterson, N. Y.—Frank F. Bell, Bristol, Pa.—Van Tuyl H. Bien, 1130 Lamont St., N. W. Washington, D. C.—Eldon S. Clark, 22 Granville St., Dorchester, Mass.—W. D. Everett, Genesee, Cal.—Louis O. French, 814 Majestic Bldg., Milwaukee, Wis.—James B. Noble, 53 W. Jackson Blvd., Chicago,

Ill.—B. M. Pettit, 1817 Main St., Racine, Wis.—Wallace D. Richardson, 649 E. 23rd St., Brooklyn, N. Y.—Lewis W. Riggs, care of G. A. Fernald Co., 67 Milk St., Boston, Mass.—William J. Roberts, Washington Ave., Spokane, Wash.—Curtis C. Webb, Morococha Mining Co., Morococha, Peru, S. A.

1911.

ORVILLE B. DENISON, *Sec.*, Hotel Standish, Worcester, Mass.
HERBERT FRYER, *Asst. Sec.*, 1095 Fellsway, Malden, Mass.

Of all the months in the year, June seems the most prominent from a Technology standpoint. In June, each year, a new class is graduated from the 'Stute and material for a new entering class is obtained by an examinative process of elimination. The alumni classes of Tech make use of June for celebrations of varying intensities, prominent among these being Tech night at the Pops. And last, but not least, June marks the passing of a host of Tech men from the bachelor league to the benedict circuit each year. All of which leads to the following observation: Nineteen eleven is batting about .500 in the June matrimonial league! More of this, giving the players' "averages," anon.—A big bunch of 1911 men were back for the Pops, and the party reminisced profusely. (Drop that brick—you're not a Mason!) Unfortunately, the secretary was unable to spend much time with the bunch on account of being on the committee for the evening and a participant in the pageant. The affair is so well covered in the news pages of this issue that no further attempt will be made to describe it here.—On May ninth the class held a fine dinner at the Engineers Club, Commonwealth avenue, Boston. Bert Fryer, our genial live wire, was toastmaster, the secretary being unable to attend. A very lively dinner ensued and following the dinner a bowling match was started on the Trinity Court alleys. The score—well nobody paid much attention to that. But the frequent trips to the Copley-Plaza provided the principal thrills of the evening.

—Before the appearance of this issue you will each have received a bill for class dues, together with an explanatory note as to the necessity of levying such an assessment. Please send remittances as promptly as possible, if you have not done so already.—Remember if you have any interesting experiences during your vacation, write to the secretary so he can pass them along to the rest of the bunch.—Now for the weddings! On May twenty-seventh in North Cambridge, Mass., Lawrence Todd Hemmenway was married to Miss Alice Hunnewell. Mr. and Mrs. Hemmenway will reside in Brooklyn. Congratulations number one!—June third marked the wedding date for Emmons Joseph Whitcomb and Miss Vivian Beers in Lawrence, Mass. The young people will be at home after October first at 33 Hall avenue, Watertown, Mass. Congratulations number two!—On June eleventh, Howard David

Williams (alias "Zeke") was married to Miss Margaret Clark at Northampton, Mass. They will be at home after September first in Winnipeg, Canada. Congratulations number three!—Monday, June twenty-ninth, marks the date of the marriage of Donald Nichols Frazier and Miss Jessie Isabel Gilmore in Lynn, Mass. Congratulations number—gee, how many's that? Oh, yes. Congratulations number four!—The following is clipped from the *Boston Herald* of May 24:

Mr. and Mrs. Frederick G. Sprague, of Louisville, Ky., announce the engagement of their daughter, Ruth McKenzie Sprague, to Mr. Sumner Chapin Willis, the son of Mrs. C. L. Willis of Dorchester. Mr. Willis is Dartmouth ex-1910 and a graduate of Massachusetts Institute of Technology, class of 1911.

—"Bunnie" Wilson is still with the Aluminium Company of America, with his work located at New Kensington, but has moved to Pittsburgh. In his own words:

If you have not my Pittsburgh address, please note that it is no longer New Kensington, Pa.—"there's a reason." If you are really very inquisitive, find some one who has been there and ask him, or better yet pay that "city" a visit yourself. I am still with the Aluminium Company of America and my work is still located in New Kensington, but the bright lights of Pittsburgh (when the smoke isn't unusually thick they really are fairly bright) proved to be such a strong temptation that I moved down.

I am supposed to use my knowledge and ingenuity in bettering and cheapening old and developing new processes of all kinds and descriptions, as well as in handling numerous special problems which constantly arise with a company as large as ours. I find this all very interesting and prospects are very pleasing. My regards to yourself and all the old crowd that you can express them to. I envy you your opportunity of keeping in contact with them.

—Paul A. Cushman writes from San Francisco:

This Golden Gate you spoke of is a sight, no mistake, but if this coast could produce a Winthrop Beach or South Boston diving-board, it would add greatly to its prestige. Be sure to get your fill of dear old Atlantic before you set out for the P. P. I. E. in 1915. I've been looking over the vineyard business at Fresno to see whether my mother and I had better vote the prohibition ticket this fall. You know this is a red-hot question out here but I don't expect to see any special happenings. The state would surely get an awful bump in the loss of the wine industry.

If you don't show us a better Boston ball-team in the course of a couple of weeks, I believe I will root for the San Francisco Seals who are in 1st and 2nd from day to day. Cheer up, the "Braves" look good on paper.

—H. L. Manley has been appointed at the Institute as special research assistant in the department of electrical engineering.—"Mike" Greenleaf, still with Gray and Davis, has been transferred from Minneapolis to Indianapolis, as engineer in charge of that territory.—Burgess Darrow has left the Goodyear people and is now with the Racine Rubber Company in Racine, Wisconsin.—

Address Changes

H. S. Alexander, 369 East Buchtel Ave., Akron, Ohio.—Kester Barr, care of Lumen Bearing Company, Buffalo, N. Y.—Stacy C. Bates, Concord Junction, Mass.—R. A. Beckman, Donato

Guerra No. 12, Mexico D. F., Mexico.—L. N. Brody, 7 Oakley St., Dorchester, Mass.—O. V. Chamberlin, Scottdale Machine and Manufacturing Company, Scottdale, Pa.—A. T. Cushing, Sterret Place, Crafton, Pa.—R. W. Cushing, 1003 Washington St., Sandusky, Ohio.—P. A. Cushman, 708 Sheldon Building, San Francisco, Cal.—W. D. Foster, 14 East Jackson Boulevard, Chicago, Ill.—H. C. Frisbie, 116 Broad St., Texarkana, Tex.—Kenneth Greenleaf, 2341 Ashland Ave. Indianapolis, Ind.—Isaac Hausman, 135 Nineteenth St., Toledo, Ohio.—H. P. Ireland, 26 Crary Ave., Binghamton, N. Y.—H. G. Jenks, care of Twin State Gas and Electric Company, Hoosick Falls, N. Y.—A. H. E. Kaufman, 272 Merrimack St., Lowell, Mass.—K. B. Kilborn, 144 East Market St., Akron, Ohio.—T. S. Killion, 130 Russell St., Malden, Mass.—E. H. Kruckemeyer, 2803 Union Central Building, Cincinnati, Ohio.—M. J. Lowenberg, 600 West 59th St., New York City.—H. L. Manley, 35 Dartmouth Ave., Providence, R. I.—Simon Nath, 15 Fowler St., Dorchester, Mass.—A. C. Pillsbury, Rodeo Land and Water Company, Beverly Hills, Cal.—P. A. Rideout, Greenwood, Miss.—S. M. Schmidt, 60 Wales St., Dorchester, Mass.—J. H. Scoville, care of Aberthaw Construction Company, 6 Beacon St., Boston.—R. D. Wells, care of Floyd-Wells Company, Royersford, Pa.—J. C. Woodruff, care of Western Electric Company, New York City.—Burgess Darrow, 514 8th street, Racine, Wis.

1912.

RANDALL CREMER, *Sec.*, care Snare & Triest Company, Cruz Grande, Chile, So. America.

JOHN E. WHITTLESEY, *Asst. Sec.*, 10 Regent Street, W. Newton, Mass.

Here's apologies for not contributing the 1912 news to the last REVIEW but I received no notification and the matter slipped by. So let's forget the past and make a new resolution to help a good cause along. Don't be afraid to make the REVIEW a regular clearing-house for all the news. Write in the odds and ends, they are all interesting to the class and the class is interested in every one of you. Be loyal.

But to change the tune, 1914, our protegees have graduated and here's wishing them our best.

Many of the class were present at the Pops Tuesday evening, June 9, to help celebrate "Tech night" and also to assist in the initiation of the class of '14 into the ranks of the alumni. Kebbon took part in the ceremonies, acting as herald and right hand man to the king, the latter being the president of the Alumni Association.

By the way, Keb thinks it about time for a little gathering of 1912 men who are located around Boston. So be on the lookout for notices.

The 1912 New York City men seem to be pretty much alive.

They held their last meeting on June 1, at the New York Tech Club together with 1913. Professor Winslow, formerly of the "Stute," spoke about "Pure Food." I did not hear whether Professor Winslow had had dinner with them or not. Osborne, Brackett, Stone, Brownlee, Appelquest, Freeman, Nicholson, Kostner, Matthews and Lange were there.

Also, here's what they do in Chicago:

Safety First

Stop! Look! Listen!

Technology 1912 Chicago.

Dinner at 6.30 p.m. Wednesday, May 13, 1914, at the Tip Top Inn, Pullman Building. Will adjourn later to the W. S. E., 1735 Monadnock Building, for a smoker and talk. Mr. C. F. Loweth, chief engineer, Chicago, Milwaukee and St. Paul Railway, whose main honor and distinction is in being the father of Loweth, '12, will be the guest of honor, and will tell the "Youngsters" the formula of "*Success.*" Gallagher will tell us how Automobiles are insured, Babcock will enlighten us in regard to the Ventilation of the "Movies," etc., by means of "Fans, Radial or Axial."

Come! You can'd afford to stay away!

Come! On time! (6.30) p.m. sharp. You can't afford to be late.

P. S. Gallagher just got married.

R. S. V. P. to D. A. Tomlinson, Dearborn Station, Chicago.

—Ken Barnard, V, writes that he is now the father of a little girl, Eleanor Gorham Barnard, born March 25, 1914. But Bill Lange writes:

I am the father of a little girl, Alida Louise, born March 25, 1914.

Little questions for today, who is the class baby?

—F. H. Busby, VI, is to be married June 17, to Miss Mary E. Doyle of Roxbury, Mass.—W. J. Seligman is now with The X-Ray Equipment Company, 100 Boylston street, Boston, Mass.—Arthur Campbell is now in Shanghai, China, where he is working as an assistant engineer for the Standard Oil Company of New York.—The marriage of Miss Agnes Newton of Cincinnati and Vincent Gallagher of Chicago took place April 29.—From the *Boston Globe:*

L. M. Sandstein, a New Zealand mining engineer who arrived yesterday on the Leyland line steamship *Devonian*, had a narrow escape from being swept overboard. . . . Sandstein is a graduate of the Massachusetts Institute of Technology. He is going to New York for a conference with an engineering concern and he expects to take charge of a big engineering job in China for the British Government.

—This is quoted from the *Boston American* but it is authentic and good news too:

Mr. and Mrs. W. C. Reynolds, of Newton Center here announced the engagement of their daughter, Ruth, to John Lincoln Barry, Jr., of Waterbury, Ct.

Does anybody know of the whereabouts of Paul G. Frazer, ex 1912?—Randall Cremer left May 28 for South America, care of Snare & Triest Company, Cruz Grande, Chile, and expects to be gone a year.

Oliver C. Lombard writes in of his engagement to Miss Helen Jeanette Marcy of Roxbury, Mass., Smith 1912.—Richardson Ayres, I, is now in the office of the United States engineers at Memphis, Tenn., as inspector on revetment and levee improvements on the Mississippi.—V. V. Ballard writes in from Chattanooga, Tenn., that he is with the Interstate Commerce Commission as compiler on valuation work.—H. C. Malbott (still single):

Since leaving school I have been with the Peerless Motor Car Company of Cleveland, daytimes—nights—Sundays—etc.—Regards to the Course II drafting room crowd.

—Morash, VI, is disgusted with the present business outlook but evidently he has something else on his mind besides the Foreign department of the General Electric Company as the following is enclosed in his letter:

Mrs. Mathilda Klok announces the betrothal of her daughter Dora to Mr. Bernard Hudson Morash of Schenectady, N. Y.

—Morash is hustling for the course VI Round Robin.—H. S. Payson, I:

I resigned from charge of the water power of the Hudson River at Glens Falls a few weeks ago in order to accept a position in the New York City office of the International Paper Company. I am still connected with hydraulic work very largely.

Miss Margaret Benton Clark, a graduate of Smith College, class of 1911, was married June 11, to Howard D. Williams of Winnipeg, Man.

Address Changes

A. C. Albee, Hotel Turner, Cambridge Springs, Pa.—F. W. Barker, Jr., Benrol Products Co., Frankford, Philadelphia, Pa.—H. S. Benson, 11 Creedway St., Taunton, Mass.—Donald E. Bent, 72 W. Adams St., Chicago, Ill.—John L. Bray, Braden Copper Co., Rancagua, Chile, So. America.—L. W. Chandler, 2512 Fifth Ave., Moline, Ill.—J. A. Cook, Interurban Ry. Terminal Co., Cincinnati, Ohio.—Marcus M. Cory, Jerseyville, Ill.—J. Edward Crowley, 15 Forest Ave., Bangor, Maine.—S. L. Day, Frederick Bldg., Huntington, W. Va.,—H. B. Davis, Lancaster, N. Y.—Ernest W. DeWitt, Y. M. C. A., Dayton, Ohio.—W. S. Etheridge, 5009 Blackstone Ave., Chicago, Ill.—John C. Freeman, Arcola, Va.—C. L. Gabriel, 445 Stafford Road, Brooklyn, N. Y.—J. B. Glaze, 124–3d St., Niagara Falls, N. Y.—Louis Grandgent, 107 Walker St., Cambridge, Mass.—Marcellus F. Graupner, 1402 Golden Gate Ave., San Francisco, Cal.—David J. Guy, care of Whitney College, Tacoma, Wash.—Jesse F. Hakes, Westerly, R. I.—A. R.

Hammond, 57 Irving St., Revere, Mass.—H. G. Jenks, 98 Barre St., Montpelier, Vt.—C. E. Jones, 1803 No. Mozart St., Chicago, Ill.—F. H. Kingsbury, 58 Temple St., Boston, Mass.—J. B. Little, Box 106, Pine Bluffs, N. C.—C. D. McCormack, Seven Bridge, Ontario, Canada.—Karl C. McKenney, Houghton Electric Light Co., Houghton, Mich.—E. T. Marceau, 315 E. 22d St., Apt., E. Chicago, Ill.—Emory M. Marshall, Globe, Ariz.—M. C. Mason, 18 Westland Ave., S. 2, Boston, Mass.—L. G. Metcalf, care of Producers Transportation Co., San Luis Obispo, Cal.—F. R. Miller, 330 Central St., Auburndale, Mass.—C. E. Morrow, care of M. I. T., Boston, Mass.—W. W. Mowry, 355 Lenox Ave., New York, N. Y.—H. H. Partridge, care of Firestone Tire & Rubber Co., Akron, Ohio.—H. S. Payson, Suter Paper Co., 30 Broad St., New York, N. Y.—H. I. Pearl, P. O. Box 96, Birchwood, Wisconsin.—A. M. Penderson, 119 S. Beacon St., Hartford, Conn.—J. M. Pettingell, Box 741, Anaconda, Mont.—H. M. Priest, 1757 No. Normandie Ave., Hollywood, Cal.—R. S. Pulsifer, 73 Washington Terrace, Bridgeport, Conn.—Stalker Reed, Oliver Mining Co, Hibbing, Minn.—H. H. Sharp, 14 Natalie Ave., Melrose Highlands, Mass.—Rugald Stewart, 1121 Bedford Ave., Brooklyn, N. Y.—F. E. Starr, 313 Crescent St., Waltham, Mass.—C. F. Smith, 6359 Kenwood Ave., Chicago, Ill.— S. S. Stevens, care of Island Creek Coal Co., 55 Congress St., Boston, Mass.—E. F. Stimpson, 75 3d St., Newburgh, N. Y.—R. F. Symonds, 37 Main St., Malden, Mass.—A. G. Thompson, P. O. Box 236, Altoona, Pa. —D. A. Tomlinson, No. Chicago, Ill.—Paul M. Tyler, Pilares De Necozari Sonora, via Douglas Anzona, Mexico.—George L. Uman, 4037 Mesa St., Los Angeles, Cal.—H. B. Vickers Empire, Canal Zone, Panama.—E. B. Wettengell, care of H. Stanwix Can. Co., Rome, N. Y.—J. S. Wise, care Wise Bros., Yazoo City, Miss.— M. G. Woodward, 807 Broadway Bldg., Portland, Ore.—V. P. Yacoubyan, 222 West 71st St., New York, N. Y.—A. W. Yearance, 418 Center St., So. Orange, N. J.

1913.

F. D. Murdock, *Sec.*, Mass. Inst. Tech., Boston, Mass.

It was with considerable pomp and ceremony that the class of 1914 was crowned with our cast off title of alumni babies. Don't fail to read the account of the Tech Pops, to be found in this issue. Was 1913 there? Foolish question; no less than fifty of our worthy classmates attended. It did seem good to see so many together, so good that Bill Mattson and Rosy Robinson were able to leave the balcony and join us on the floor for fully a half hour, and George Richter, Bob Bonney and Charlie Thompson spent the whole evening with the crowd. You really must know the evening habits of these boys to appreciate the above statement. It was a jolly crowd, notwithstanding that times

are poor and beer is expensive at Symphony Hall. Thirteen was well represented at graduation. The following learned men of our class have thus early become masters of science, and were awarded the letters, S. M.: Mortimer P. Allen, I; John H. Hession, I; Henry O. Glidden, IV; Charles L. Burdick, V; Louis Rabinoutz, V; Robert W. Weeks, VI; Yu Lin Wu, VI; Arthur W. Carpenter, X; Ming Tsai Hsu, X; Arthur W. Kenny, X; Max H. Harrington, XI; and Alan Hay Means, XII.

It speaks well for the prosperity, and possibly the courage, of our classmates, that we are able to devote an unusual amount of space to matrimonial matters. The *Boston Transcript*, of May 29, prints:

Mrs. Benjamin Turner Stephenson of Brookline announces the engagment of her youngest daughter, Claire, to Kenneth Davis Hamilton (II) of Medford.

—Charlie Thompson, X, is engaged to Miss Hester E. Young, Wellesley, '12, of Brookline. That explains Charlie's omnipresent, happy smile.—On April 10, the engagement of Miss F. Imogene Reed of Greenwood, Mass., to Bob Bonney, X, was announced.—Gerould T. Lane, V, is engaged to Miss Irene Washburn of New York.—Benjamin White, I, was married last Thanksgiving.—Oscar M. Arnold, VI, was married in December.—Lester Gustin, I, Russell Atwater and Albion Davis, I, have taken June brides. Gustin was married the 8th of June to Miss Annie Winifred McLean of Somerville. Atwater married Miss Conway Lilly, of Indianapolis on June 6. Davis and Miss Constance L. Hall, of Waltham were married June second. All sorts of good luck to you, happy people.—It is a pleasure to introduce Mr. Hart, Jr., M. I., T. 1936(?). Larry Hart, XI, became a happy papa on May 24. We are waiting for particulars, Larry; congratulations and best wishes.—The secretary would appreciate it if you fellows who are intending to deserve mention in this column would write him the full particulars, so that he will not, as heretofore, be forced to rely upon newspapers and hearsay for his information. Every man who is fortunate enough to have a job is sitting right on it, which explains the small number of changes of positions at this time. We have a few brave men among us.—Joe Strachan, I, left the Hell Gate Bridge, and is now with J. G. Basinger, consulting engineer, of Broadway. Joe was in Boston for a day a short while ago. He likes his work, and he is a happy boy; there's a reason!—The 1912 men of New York City gave a dinner at the Tech Club, on April 25, to the '13 men who are working in that city. Walsh, I, Underhill, I, Mayper, I, Strachan, I, Townsend, II, and Thayer, Arnold, and Weller, all VI, attended. It was a much more pleasant affair than the first reception which the sophs gave us, on Field Day, November, 1909.—Jim Beale, XI, resigned his position as "chief engineer" out west, and is back in Boston working for the Aberthaw Const. Company.—Bill Mattson,

I, is home again, working for the town of Brookline, as inspector of construction work.—Arthur Carpenter, X, has gone to Alliance, Ohio, to take charge of the Municipal Filtration Plant.—Walter Brown has a new position, with the Federal government, investigating the pollution of the Ohio River. His work will take him on a rather pleasant houseboat trip this summer down the Ohio to the Mississippi.—The business of letter-writing, as formerly carried on by the secretary and the members of 1913, mostly the latter, is suffering a sympathetic depression, which is not "psychological." "Rup" Shatz, I, helped us out; he writes:

I have been in New York with Jas. C. Harding, engineer, since last summer and have spent my time very profitably. The work since I have been here has consisted of the design of several sewage disposal plants, including that for Schenectady, N. Y., one of the largest in the east, a $2,000,000 water works appraisal and a report and alternative design for the Bronx Valley Sewage Disposal Plant. I have run across a number of the boys here in the city of late. Cremer is up the street a little way and so is Mayper. Have also seen Strachan for about a minute one morning. I have made fairly good use of the reinforced concrete I was taught up at school, also of a lot that I wasn't.

John Batchelder, XIV, out in Trail, B. C., has the proper spirit. He says:

I have been with this company since the first of September last year and am satisfied with the progress I have made. I have been employed in the assay office where all the analytical work as well as the assaying is done, though I hope to work into electro-chemical lines—probably electrolytic refining—ultimately. However, I will probably be kept in the assay office a year or two yet. The C. M. & S. Company treats gold, silver, lead and copper ores, though at present, lead only is refined here. Plans are under way for a copper converter plant and a copper refining also for a zinc smelting plant. The company does a big business, as is indicated by the fact that the profits for the fifteen months ending September, 1913, were nearly one million dollars.

—You who were so patient as to read past the first pages of our last REVIEW notes were rewarded. The secretary prides himself on having secured the services of our scholastic, Arthur Kenney, X, who edited a generous portion of the April notes, and who has favored us again in this issue. Your attention to Sir Arthur, master of science:

Since the last bunch of class news was published, a large number of fellows have been heard from, who didn't get around in time to be reported before. Incidently, the record-breaking class of 1913 has smashed another record and has the largest number of paid-up members of any graduated class. That's certainly the kind of spirit that's going to keep the crowd sticking together "till death do us part." There has been a goodly number of the statistics blanks which the secretary sent out returned, but more letters from the fellows recording the ups and downs of existence would be appreciated. The secretary may as well admit right away that when it comes to writing letters he's about the worst ever, and right now owes somewhere between twenty-five and fifty replies;*

**The secretary pleads guilty.*

but if the fellows would accept this news-sheet as a substitute and keep on writing at least every other month, it would keep us together better than anything else we can do. There are many, many names on the list which the secretary does not recognize, but he hopes that they will write just the same and if they never receive a reply, they are no worse off than his intimate friends, who fare just the same. The news this month doesn't show so great a variety of fortune as last term's, but it indicates that the fellows are spreading out and getting down to the business of life. In reporting progress, the attempt has been made to group together the men who have taken up the same kind of work regardless of their history at the 'stute. It is hoped that this will make the news easier and more interesting to read but if anybody has a better scheme for outlining the dope, shoot it across; it's nothing in the lead-pipe line trying to be a combination statistician and short story writer. The civils are earning their reputations as globe trotters.—Y. Henry Hsi, I, is the long-distance man, residing in Ichang, China, where he is assistant engineer for the Ikwei section of the S. H. Railway. He writes:

> Things are not so handy here as in the United States. I shall have to wait till I get down to a bigger town before I can send a draft for my dues.

—F. W. Blackword, VI, is helping the government with its "big ditch." He is located at Colon and has been structural engineer for the Panama Railroad Company for about a year. There is plenty of work to do yet, so he expects to stay there quite a while. He reports that some of the biggest and best-paid positions down there are held by Tech men. That's what we like to hear.—Bob Nichols, I, is now at Fort Stanton, New Mexico, and has demonstrated his versatility by changing his title from topographer to hydrographer.—Maurice Levy, I, is with Office of Public Roads, with headquarters at Washington.—A. E. Burnham is working for the Phoenix Construction Company at Waco, Texas, as assistant engineer of power plant construction.—Mutersbaugh, I, succeeded in getting back South as soon as possible. Lake Charles, La., is his address and he is inspecting the construction of a series of concrete girder and arch bridges. Several of the men have followed the advice to "Go West."—Gene Burrell, I, is located in Tacoma, and is now levelman doing construction work near Auburn, Washington.—"Blondye" Roe, I, is travelling all over Michigan under the auspices of the State Highway Department, division of bridges.—Nevada claims Lew Beason, I, who is surveying for the Utah Construction Company.—Another '13 man has shown up in Canada; Cedars, Quebec has the honor this time, for Thomas Lough, I, is assistant division engineer, with the Cedars Rapids Manufacturing and Power Company.—Some of the boys keep on the move all the time. For example, De Coen is civil engineer for the Great Northern Paper Company,

building roads in Maine.—Raymond Elcock, XIV, is another road builder, concrete roads being his line.—Jake Goff, I, is on railroad work in Pennsylvania.—Wylie Daniels is also a railroad man, located in Indianapolis.—Any of the fellows around Boston who want to see the new pier the Port of Boston directors are erecting in South Boston should accept K. Van R. Dey's invitation to come around. He has been working with the directors for two years.—A. H. Parthum is in a testing laboratory in Pittsburgh.—Guy Swenson is granite contractor in Concord, N. H. Those interested in tombstones should not fail to get in touch.—The heart of every Course II man will be gladdened and indeed every loyal member of the class will rejoice to hear that Ray Palmer, II, the most accomplished of the many speakers at the senior dinner, has at last notified us of his fate. Hard at work in Chicago in the engineering department of Heinrichs Koppers Company. Could you guess what they make? Why easy! They are builders of ovens for producing gas; and if Ray doesn't know how gas is produced, it can't be done.—Walt Bylund, II, rejoices to be East again, after a residence in Chicago. He's now assistant to the general superintendent of the Birmingham Iron Foundry, Derby, Conn.—Bartel, II, is living in Providence, R. I., and working with the Providence Engineering Works.—George Waymouth has wandered as far as San Juan, where he is a machinist.—James Young hails from Hamilton, Ontario, engaged in cotton manufacturing.—Donald Downs, II, picked out the peaceful city of Philadelphia for an abiding place and is improving the United Gas Improvement Company there.—Several of the men are still around Boston.—Frederic Barker, II, is with the Blount & Lovell Engineering Company.—Paul Cogan, II, is draftsman at Fore River Ship and Engine Corporation, Quincy; and Thomas Rice has been doing testing work in Boston, but expects to move to something bigger soon.

Course III men seem to have tired of the culture of Boston and have taken to the wilds of the earth in preference.—W. S. Black, III, has the worst case, he says:

> Haven't any residence; am seventy-five miles from a railroad.

—"Honey" Nowlin, I, is doing mining engineering in Elkhorn, West Va.; and Sam Knight, who used to be a cheer leader in the old days, is learning about mining at first hand in Arizona.—William D. Stevens is studying at the Michigan College of Mines for the degree of mining engineer.

Most of the architects are engaged as draftsmen, for a while.—J. H. Enright, IV, is in the office of A. A. Lawrence.—Edward M. Bridge, IV, is with Coolidge & Carlson; and George Dyer, IV, is with Henry F. Keyes.—George Curtin is also in Boston with Edward F. Stevens; and Paul Franklin is with William C. Chase.—Mac Tarnaghan, IV, is playing the same game in New York.—

Lindsley F. Hall is seeking the spice of life in Cairo, Egypt, and the surrounding country, where the Metropolitan Museum of New York has concessions.—When anybody speaks of chemistry to a 1913 man, he naturally thinks of Georgie Richter, X, as the man who will make chemistry and chemical engineering famous. George has been doing fine work in the industrial laboratory during the past year, and is now with the Burgess Sulphite Company in Berlin, N. H., as a research man. The only thing worrying George is what he will do for girls out in the country.—Hastings, X, whose cheerful smile everybody remembers, is said to be really working, as assistant experimental engineer for the Solvay Process Company at Detroit. —Robert Rider is helping make the famous shaving preparations for the J. B. Williams Company.—Charles Livermore, V, is chemist for the General Chemical Company, Long Island.—Every inhabitant of Weymouth must curse Louis Carter as a true chemist. He is foreman of the department which makes the smell in the Bradley Fertilizer Works; truly a sad fate.—D. H. Gillingham is chief chemist of something or other in Porto Rico. His address is Central Fortuna, which certainly sounds all right.—Wemple and Crawford, both X, are researching for the American Sheet and Tin Plate Company of Pittsburgh, but Wemple has been transferred to the new laboratory at Sewickley, Pa.—Crawford reports that "Steve" Brodie, X, has finally gravitated to Pittsburgh, but adds mournfully that, even so, the Smoky City is still far removed from civilization.—Charlie Thompson left there, and is now in the matrimonial column. (cf.)—John Coe, X, hasn't been able to get further West than New York City, where he is chemical engineer with the United States Rubber Company. There's no longer any doubt what tires we should buy.—Joe Cohen is now chemist for the American Glue Company.—About graduating time Earle Lincoln, X, dropped in at the 'Stute, as the Keystone Coal and Coke Company, Pa, for which he is draftsman, were shouting him to a well-earned vacation.—J. V. MacDonough, the course X scrapper, is boosting the Semet-Solvay Company.—Louis Walsh, X, the man with the halo, came all the way to Boston last month to tell us how well he likes his job with the Great Northern Paper Company; it's too bad we're not all so well fixed.—"Bunny" Howlett, X, invites any of the boys in to see him at 30 E. 42d Street (opp. Grand Central Station) N. Y. City.—Al. Loebenberg, X, is in Elizabeth, N. J., chemist for the Hygienic Chemical Company and still claims he can lick MacDonough, if he can only find him.—A. R. Atwater, who left us for the joys of married life, is now ceramic engineer with the National Tile Company, Indiana.—"Hez" Holmes, X, has hit the pace now, all right. He's solicitor for the American Writing Paper Company and is now in Philadelphia. We're willing to bet Holmes will solicit with great speed and accuracy.—Leon Parsons, V, commonly known as "Snips," has aspirations for the higher things of life.

In harmony with the present move towards Harvard he is in the graduate school of the university where he is half-time assistant and candidate for the doctor's degree. It looks as though Snips would be out first "Doc."—"John" Alden is first alphabetically in X; so we've kept him till last to square up. He's making rubber boots in Malden for the Boston Rubber Shoe Company.

The electricals responded in a hearty manner to the call for information. Some of them are still doubtful as to what they should be called. Hersom, VI, confesses he is an "electrical engineer (embryonic)" with C. H. Tenney & Company, Boston.—Ralph Thomas, VI, calls himself an "electrical (?) engineer," but Stone & Webster rate him as a student engineer, and he too is working in Boston.—J. B. Fellows, VI, is with the Ideal Wrapping Machine Company, Middletown, N. Y.—Charlie Edison, IX, is at Orange, N. J., with his father's corporation.—"Geoff" Thayer came across with a good long letter and a reprimand for incorrect statements in the class news. He says:

> I have been enjoying myself this winter as Applequest and Arnold were living here, and the three of us had played on the Tech Musical Clubs. We have played in several public concerts, so have met a number of very nice people.

That's all right, Geoff, if they are still nice after hearing the music.—Malcolm Leonard had to leave during our junior year, but is still a loyal '13 man. At present he is electrician for the Osgood Bradley Car Company, Worcester.—Thomas O'Reilly, VI, lives in St. Louis, and has been making a detailed inventory of all the physical property of the Electric Company of Missouri.—Bad news comes from Joe MacKinnon, VI, who is "only existing, not living" in Montreal. The fellows probably remember Montreal's water famine caused by a broken main last winter. On New Year's day, before the service was reëstablished, "Mack" got caught in a fire and lost all his clothes, books, etc., to the value of about 500 U. S. monetary units; and was so badly burned as to be in the hospital three weeks. No wonder he wishes he were "back in dear old Bean Town." We certainly would like to see him again and hope fortune will be so good to him that he will more than catch up with himself.—Charles McCarthy, VI, has been a student with the Western Electric Company in Chicago, but expects to be moved elsewhere soon.—C. W. Brown, VI, is also working for the Western Electric as telephone engineer in Boston.—Nicholas Vavondis has worked with the General Electric Company in Lynn as draftsman for a year, but is now bookkeeper.—Claude Cairns is electrical engineer in Brookline.—Ira W. Knight, VI, is another Bostonian, *i.e.*, officially. He is inspector for the Underwriters Laboratories Incorporated, and covers the Rhode Island territory, which comes under the Boston office.—A. D. Conant, one of the starts of our freshman relay team, serves the New England Telephone & Telegraph Company in the engi-

neering department.—Chester Wetherbee, VI, sent up a newsy note from Philadelphia, which we print in full:

I am very pleasantly situated here in "Slowtown," and in the personnel of the Telephone Company, M. I. T. is very generously represented. I believe there is a local M. I. T. society in existence here somewhere, but apparently the Tech men are so busy that the society has become *hors de combat* as it were. However, we had one good meeting in February, when we entertained the visiting delegation from Boston. There was plenty of Tech spirit loose that night, and it was a good get-together-meeting all around. In closing I might say if any of the 1913ers want to see some real baseball, tell them Phillie is the place.

—John Wilfert, who used to be quite prominent in class football, is now electrical contractor in Jamaica Plain.—Thirteen men are interested in all modern progress. The famous Mazda Lamps owe part of their fame to the efforts of Clarence Rogers, with the Electrical Testing Laboratories, New York City.—Helping out the country towns is John Foley, engineer and draftsman for the Central Massachusetts Electrical Company, Palmer, Mass. Altogether, course VI seems to be keeping up its reputation as "live wires."—We haven't many biologists to boast of, but those we can claim are right on the job. E. E. Smith, VII, has headquarters at the United States Marine Hospital, Pittsburgh, working on the Ohio River Investigation in the United States Public Health Service.—Doing similar work is William C. Purdy, examining "Plankton" of the Potomac.—Elliot Gage, XI, has taken the engineering end of the health business for the Massachusetts State Board.—Only three shipbuilders have been heard from: Edward T. Dobbyn writes:

Am at present a ship draftsman in the construction and repair department, Hull Division, at the Navy Yard. I was appointed in 1912 after a competitive Civil Service examination. My best wishes to you and any of the boys you may meet.

—George Darling, IV, is draftsman at Fall River, and Henry Welsh acts as assistant to the Quincy manager of the Electric Boat Company. which formerly was the Holland submarine Torpedo Boat Company.

—Many of the men have demonstrated their versatility by taking up lines of work dissimilar from anything we get at Tech. The greatest originality has been shown by Morris M. Leonard, now a student at Newton Theological Institute; he writes:

Theology and Chemistry have little in common, but I'm always a Tech man.

—More fellows have shown up in Uncle Sam's service. Lieut. A. M. Jones is with the Tenth United States Infantry and Edward H. Smith is third lieutenant in the Revenue Cutter Service.—A more peaceful pursuit has been taken up by Edward L. Wadsworth, rancher in the State of Washington, where he is raising hogs and apple trees. Sickles, II, is a neighbor of his.—Any fellows having sufficient leisure for auto touring in Texas will be interested to learn that Paul Ruttkay, 1016 Busch Building, Dallas, is engaged

in boosting the touring proposition in all reputable ways.—Ross Sampson hasn't forgotton his days at Tech. He is with the R. I. Perkins Horse Shoe Company, and says:

Have been located with this concern over a year, in connection with the purchasing department and the systemizing. I have the opportunity occasionally of tackling our mechanical problems with our superintendent or master mechanic. The general trend of the work, however, is toward the executive side. I find time to indulge in my pet hobby, wireless telegraphy. I take great pleasure in erecting stations and have made some extensive experiments with different types.

—"Buttsy" Bryant wrote, "still at it," and several other men have been students at the 'Stute this year.—A. H. Spaulding, X, Arthur F. Petts, II, M. J. Smith, VI, and Alfred Edwards, I, have been here, and Franklin Bent has transferred to Worcester Polytech.—F. W. Eaton is working with the Connecticut River Transportation Company, and we received a slip from F. A. Reece stating that he is still in Boston.—H. S. McLellan, I, is temporarily employed in a clerical position, but hopes soon to break into professional work.

—Many large concerns are bidding for the services of our new masters of science. Arthur Kenney is holding up the business in two companies while he is choosing which to work for.—John Hession, I, accepted employment as concrete designer, with the Corrugated Bar Company of Boston.—Gibbs and Hill, of New York City, electrification engineers, are going to have a crackerjack assistant office boy. Bob Weeks, VI, is receiving congratulations on his appointment to fill that honored position.—Of this year's assistants, Gene Macdonald, I, has gone to New York City to be an assistant engineer for the Public Service Commission, engaged in subway construction.—Warren Glancy, X, has started to learn the rubber business with the Hood Rubber Company.—Burdick and Bellis, both X, are to be instructors in theoretical chemistry, and Bob Bonney, X, will hold that rank in the analytical laboratory.—Fred Lane, X, will return as an assistant, and Walter Whitehead, III, is coming back on a fellowship.—Lindsey Whitehead, I, is surveying for Worthington, a local engineer.—Jack Rankin, VI, starts work in August for the A. T. and T. Company, in New York City.—The class secretary will be with the Hartford Fire Insurance Company at Hartford, Conn., but he can always be reached, on matters pertaining to the class, at the Institute.—Dick Catton, VI, wrote a nice letter from Hawaii, as follows:

It felt mighty good to get your letter the other day, and to realize the class cares enough about its members to want to know what they are doing. Here's my history: I took a position with the J. G. White Company last summer as instrument man, and had charge of all the surveying in connection with the erection of the Marconi station at Kahuku, Oahu, which as you probably know is one of a chain to encircle the world. I gained a great deal from this experience, as the thirty hour course we electricals got at Tech could hardly claim to make you a C. E. About Thanksgiving time I was taken ill with typhoid fever, and they tell me,

came near saying good-bye to all my friends. But after three months I was back on the job again, in better health than before. This time I am asssistant electric engineer, and find the work intensely interesting, as this is all, more or less, new ideas and apparatus which we are erecting. I expect the plant will be in operation in a few months now.

—Here's hoping your good health and interesting work continues, Dick.—"Honey" Mutersbaugh, I, has turned up in Lake Charles, after having spent some months in railroad work in California. He writes:

I got very much disgusted with railroad work and quit it, but I landed a job under one of our grads here at home. He has charge of all the new roads in this parish, including all the bridges. I was given the job as inspector, and am now getting the real article. There is a lot of work going on around here and I am going to stay here for awhile and see what the chances are. I will have a year or two of these bridges, and I intend, when I have the necessary experience, to hang out my own shingle.

That's the proper spirit, "Honey." Good luck to you!—It is a fortunate firm which secures "Rosy" Robinson's permanent services. "Rosy" has changed jobs again, and is now structural draftsman for the Boston & Maine. Rosy possesses a wonderful structural instinct. A fellow once asked him in the fourth year drawing room, how he figured the number of rivets to put in a special splice plate. He replied, "You don't have to figure it, just put in enough to hold it."—Henry Burr is working on the new site, for Stone & Webster.—"Pa" Ready has charge of a construction job for the same firm. He brought Neva down on the floor at the Pops, to the delight of her 1913 uncles. She is a big, pretty girl.

Just at present the secretary is scouting around for a man to act as resident secretary of our distinguished class. Here's a chance for some one to make himself a hero by offering to take the responsibility. If each man would realize how much he could contribute to the success of these notes by mailing a postcard whenever he changed jobs or had some information of interest to his classmates, he would gladly take the slight trouble. Won't you help to make the next notes a little more complete?

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After its brilliant success of Senior Week and its unparalleled ovation at the Pops, the class of 1914, now men, goes out to prove its worth in the business world. We have not heard as yet of many marriages, many fortunes, or of rivers being set on fire by engineering prowess, but the undergraduate record of the class assures news of great importance in the next issue.

And now about this next issue. Are you numbered with the lucky ones to receive it? Through the courtesy of the Alumni Association you are all sent this copy, but to procure the next one, you must send along that two dollars, which entitles you to membership in the association, to not only next year's copies of the TECHNOLOGY REVIEW, but all the issues for the remainder of this year. How can you afford to miss such an opportunity?

The REVIEW is, needless to say, the official organ of the alumni, and if you intend to keep in touch with your classmates and other alumni, the publication is indispensable. Especially is this true of those among us who were not quite so fortunate in procuring their sheepskins, for it is their only means of notification by the association of the many matters of common interest.

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And now who is the first live wire of alumni 1914? Last year the class of 1913, our hated and so oft-defeated rivals, established a

record for payment of class dues and subscriptions to the REVIEW. It is for you to establish the high mark this year for our class. Now that we have performed this rather distasteful task of asking you one and all to become duly enrolled alumni members, we want every one of you to keep us posted on every change in address, any personal or business news of interest, and your success in the matrimonial world.

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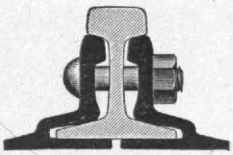

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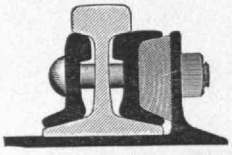

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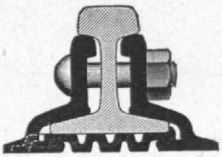

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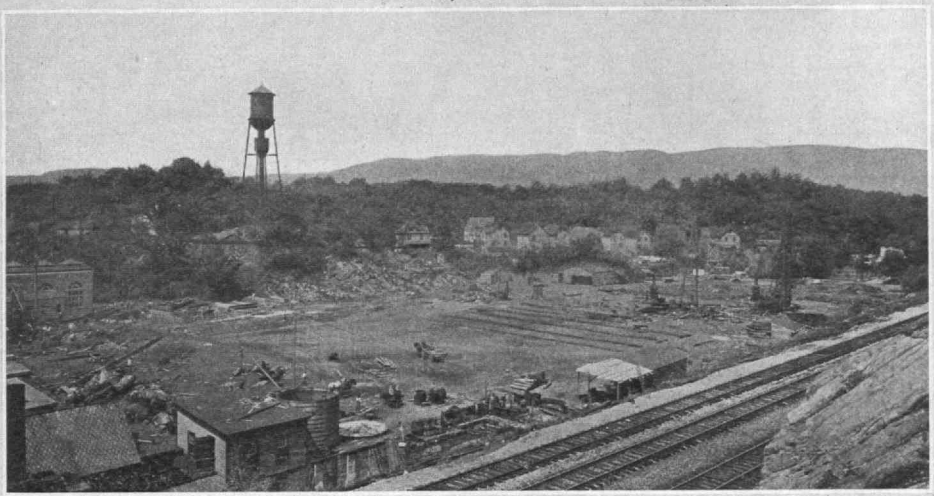
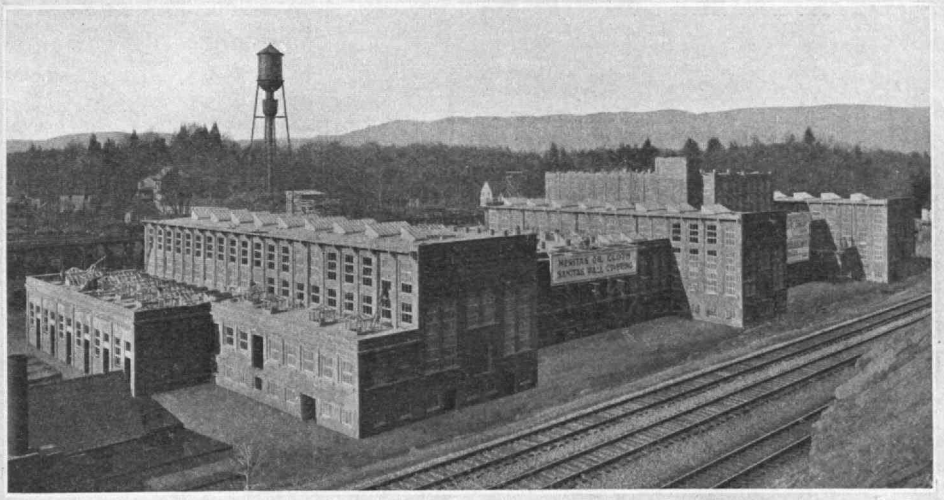


These photographs show five months' progress



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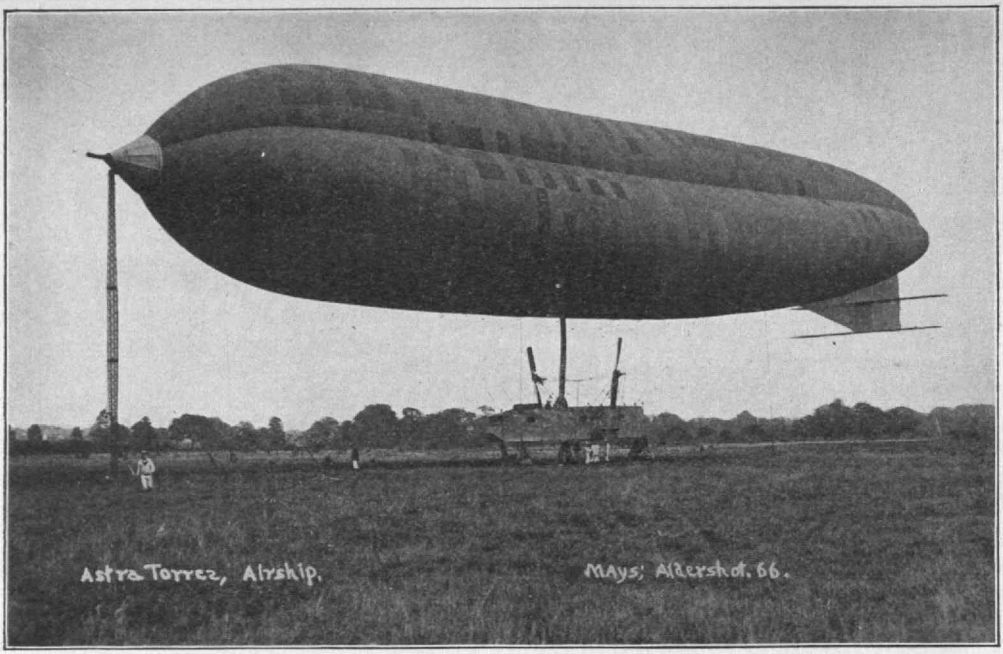

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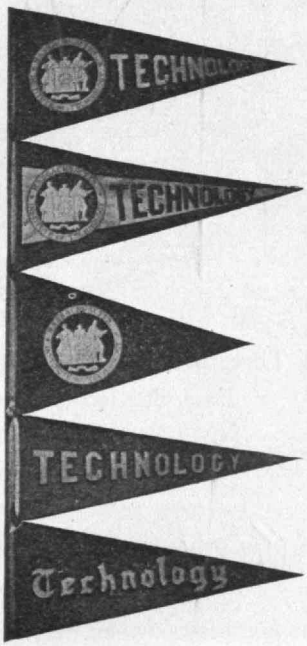

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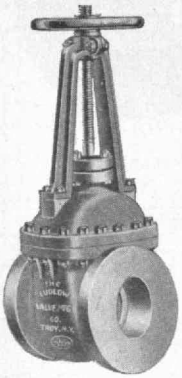

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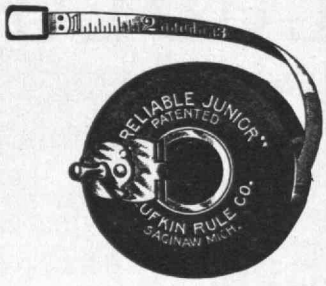

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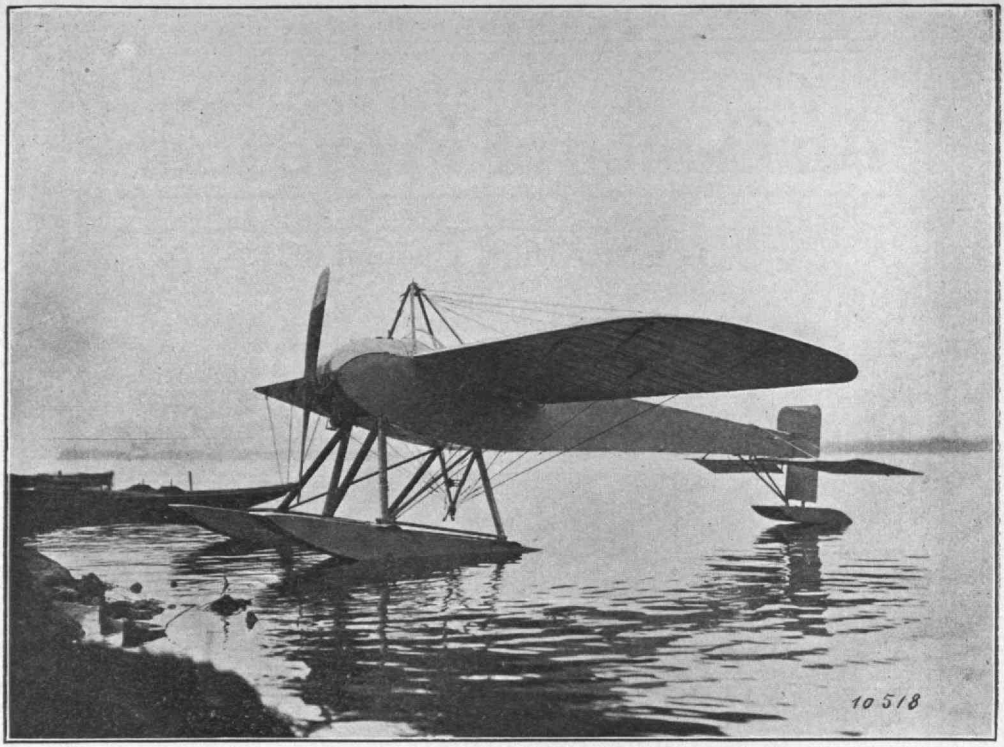
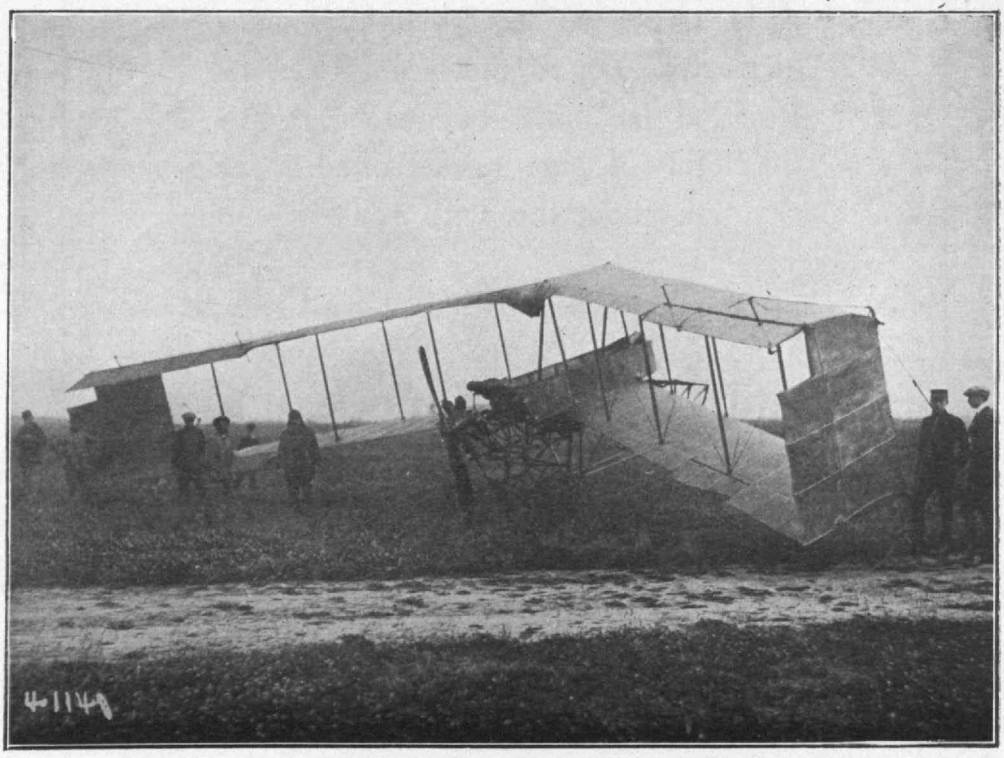


Borel Monoplane, showing wing stays of wire cable running to upper and lower king posts—*Science Conspectus*



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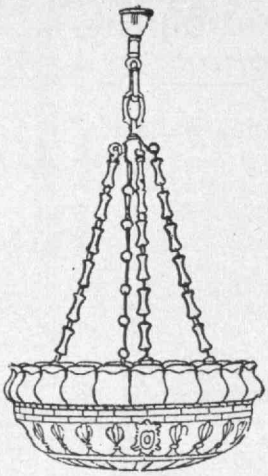

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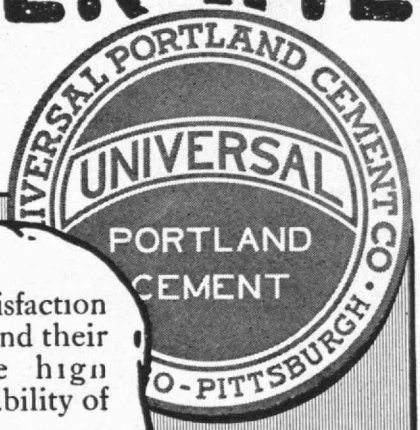

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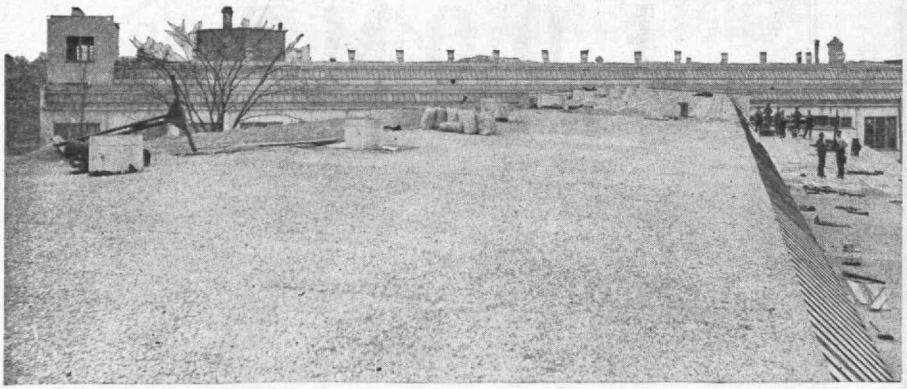

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